

# **State of Montana**

## *Traffic Records Strategic Plan*

**Montana Department of Transportation  
State Highway Traffic Safety Office**

*June 2, 2006*



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*final*

# **State of Montana**

## *Traffic Records Strategic Plan*

*prepared for*

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# List of Acronyms

BIA	Bureau of Indian Affairs
CODES	Crash Outcome Data Evaluation System
COTS	Commercial-off-the-shelf
CVARS	Commercial Vehicle Accident Reporting System
DOJ	Department of Justice
DOT	Department of Transportation
EMS	Emergency Medical Services
GIS	Geographic Information System
GPS	Global Positioning System
FARS	Fatality Analysis Reporting System
FMCSA	Federal Motor Carrier Safety Administration
HPMS	Highway Performance Monitoring System
ICC	Interstate Commerce Commission
IHSDM	Interactive Highway Safety Design Model
IHSP	Indian Highway Safety Program
MARS	Montana Accident Records System
MCSAP	Motor Carrier Safety Assistance Program
MDT	Montana Department of Transportation
MPO	Metropolitan Planning Organization
MMUCC	Model Minimum Uniform Crash Criteria
MT-TReSP	Montana Traffic Records Strategic Plan
MVI	Motor Vehicle Identification
NEMESIS	National EMS Information System
NGA	National Governors Association
NHI	National Highway Institute
NHTSA	National Highway Traffic Safety Administration
OPHI	On-line Pre-Hospital Information
PAR	Police Accident Report
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SMS	Safety Management System
TRA	Traffic Records Assessment
TRB	Transportation Research Board
TraCS	Traffic and Criminal Software
TRCC	Traffic Records Coordinating Committee
VIN	Vehicle Identification Number
VMT	Vehicle-Miles of Travel



# 1.0 Introduction

## ■ 1.1 Overview: What a Traffic Records Strategic Plan Aims to Achieve

Strategic planning in general is a process by which agencies or firms describe their long-term direction and the steps needed to move in that direction. A Traffic Records Strategic Plan lays out the goals, objectives, and actions needed *to improve the timeliness, quality, completeness, integration, and accessibility of data used in traffic safety analyses*. It is meant to answer the basic questions of: what do we want to achieve and how do we get there? Its domain covers the entire “data stream,” from beginning to end:

- Data collection;
- Data processing (quality control, editing, aggregation, and transformation);
- Data integration;
- Data use in safety analyses:
  - Problem identification:
    - High-crash locations; and
    - Crash typologies.
  - Countermeasure effectiveness; and
  - Predictive model building.

In practice, a traffic records strategic plan is the guiding document for a statewide Traffic Records Coordinating Committee, a body composed of members from the different stakeholders involved in collecting and using data related to highway safety. The plan essentially acts as the committee’s charter and provides guidance and a yardstick for measuring progress.

In addition, a traffic records strategic plan should be a “living document,” which may need to be altered on a continuous basis to take into account the amount of progress that has (or has not) been made and any other changes in circumstances. The Traffic Records Coordinating Committee performs the review process as a way to be fully informed about the State’s progress in implementing the strategic plan and about other circumstances as they unfold.

## ■ 1.2 Specific Purposes for the Montana Traffic Records Strategic Plan

This Plan, the Montana Traffic Records Strategic Plan (MT-TReSP), provides Montana's Traffic Records Coordinating Committee (TRCC) with a *basis for moving forward in upgrading and integrating the data systems used to conduct highway safety analyses in the State. It is focused on specific actions and projects that should be undertaken to accomplish this goal. The Plan is based on the information system and data collection deficiencies identified by a number of avenues, as detailed in Section 1.6. The Plan covers a five-year period from 2006 through 2010.*

Development of the MT-TReSP was one of the key recommendations of the Traffic Records Assessment (TRA) conducted in April 2004.<sup>1</sup> In fact, all traffic records assessments encourage the development of strategic plans, or the updating of older plans. The Montana TRA recommended:

- Task the Traffic Records Coordinating Committee ... with the development of a Traffic Records Strategic Plan. This plan should:
  - Specify the requirements for and from each component of the traffic records system: crashes, citations, convictions, roads and streets, drivers, vehicles, and Emergency Medical Services/Trauma. Derive this information from the TRCC task-level personnel, rather than from any external source.
  - Identify the goals for improvements for each of the traffic records system components.
  - Prioritize the goals, and recommend achievable dates for implementing each.
  - Secure commitments to the goals and the task schedules. Identify known and foreseen obstacles to each task that is questionable to be accomplished by the time desired. This includes identification of funding problems and possible solutions. Identify to the extent possible the costs of failure to accomplish each required task. Complete benefit/cost analyses as needed.
  - Identify the procedures for tracking progress and modifying the plan as tasks are either achieved, revised, or dropped.

Therefore, *the first purpose of the MT-TReSP is to fulfill the requirements of the Montana TRA.*

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<sup>1</sup> *State of Montana Traffic Records Assessment*, April 19-23, 2004, National Highway Traffic Safety Administration Technical Assessment Team (Larry C. Holostine, Leslie Nelson-Taullie, Langston A. Spell, Carol Wright, John J. Zogby).

However, the MT-TReSP is not merely seen as an administrative necessity – it also is an opportunity to raise the visibility of the importance of traffic records improvements and to provide a focal point for bringing the many agencies involved in traffic records together. Data systems which contain information useful for highway safety research and planning have been developed independently for various administrative purposes, usually not related to highway safety. Therefore, *the second purpose of the MT-TReSP is to provide Montana state agencies with a common basis for moving ahead with traffic records systems upgrades, integration, and data analysis.* The intent is not to dictate each agencies' direction and mission, but rather to integrate and coordinate their activities to achieve a process for routinely analyzing highway safety problems in a comprehensive fashion. The mechanism for meeting this second purpose is the Action Plan provided in Section 3.0. This is a description of activities to be undertaken by the TRCC and individual state agencies in Montana. The activities range from relatively simple actions that can be accomplished with existing state staff to defining specific projects that require more intense levels of effort.

Beyond being a foundation for guiding traffic safety records improvements, as specified in the TRA, traffic records strategic plans have a very practical use: they will be used as a basis for determining grants to state agencies available under the recent reauthorization of highway programs.<sup>2</sup> The legislation specifies:

... a state shall demonstrate to the satisfaction of the Secretary that the State has ...

... (2) developed a multiyear highway safety data and traffic records system strategic plan:

- (A) that addresses existing deficiencies in the State's highway safety data and traffic records system;
- (B) that is approved by the highway safety data and traffic records coordinating committee;
- (C) that specifies how existing deficiencies in the State's highway safety data and traffic records system were identified;
- (D) that prioritizes, on the basis of the identified highway safety data and traffic records system deficiencies of the State, the highway safety data and traffic records system needs and goals of the State, including the activities under subsection (a);
- (E) that identifies performance-based measures by which progress toward those goals will be determined; and
- (F) that specifies how the grant funds and any other funds of the State are to be used to address needs and goals identified in the multiyear plan.

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<sup>2</sup> "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" or "SAFETEA-LU."

*So, the third purpose of the MT-TReSP is to provide a basis for Montana's grant requests to the National Highway Traffic Safety Administration (NHTSA; to receive first- and successive-year grants under Section 408, Title 23) and for grants to FMCSA under the CVARS and MCSAP programs.*

## ■ 1.3 Montana Safety Goals and Objectives

Setting goals and objectives are typical steps in any planning process, including planning in the private sector. Figure 1.1 shows the general process that is followed, using both safety and congestion as examples. The process starts with general statements of what is desired to achieve and gets successively more specific so that tangible results can be achieved. Goals are broad policy-oriented statements that are given more specificity with one or more specific objectives supporting them. Performance measures are used to implement and quantify the goals and objectives set earlier in the planning process. That is, they describe in numeric form the general concepts put forth in goals and objectives. Figure 1.1 illustrates how general goals are turned into more specific objectives which in turn are assigned more specific and quantitative performance measures. (This is just a general example and is meant to specify a process for Montana, to illustrate a general process of how a performance measurement program goes from the abstract to the specific.) The final step is to develop performance "target" values for the performance measures, which can be stated in absolute terms (a fixed number) or in relative terms (e.g., annual percentage reductions). Setting performance targets usually means that some analysis of current conditions and past trends be conducted in order to determine what conditions are and what realistic targets should be. Targets can be applied at any or all levels of the process, from goals through performance measures. The goals and objectives of the MT-TReSP are provided in Section 3.0.

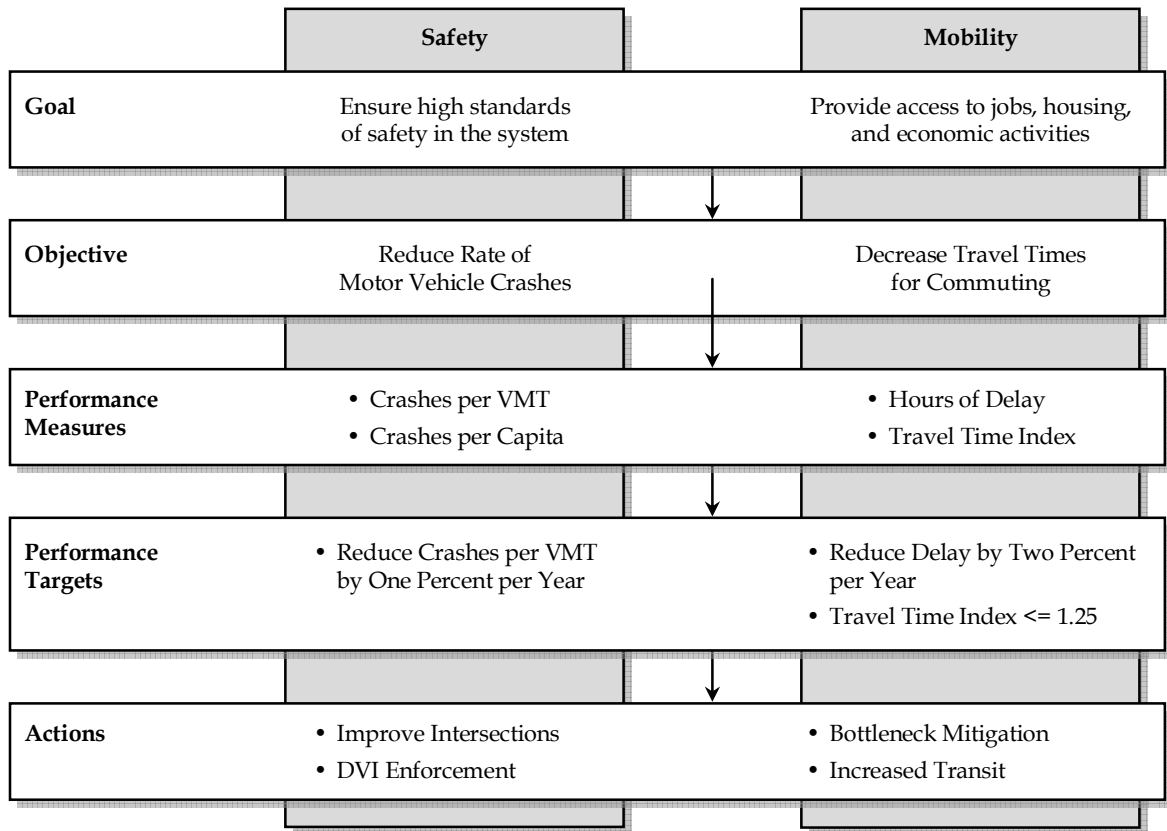
### Montana Safety Goals

As of this writing, Montana is still developing its safety goals and objectives as part of the Comprehensive Transportation Safety Plan. Preliminary goals (subject to change) for safety in Montana are:

1. Reduce the Montana statewide **fatality** rate from 2.05 per 100 million vehicle miles traveled (VMT) (2004) to 1.5 per 100M VMT by 2008; and
2. Reduce the Montana statewide **injury** rate from 82.9 per 100 million vehicle miles traveled (VMT) (2004) to a consensus-derived value by 2008.

Supporting these goals are several objectives that relate to specific countermeasure categories **and** to management initiatives that will influence the progress toward achieving the goals:

**Figure 1.1 Performance Measures Provide a Quantifiable Means of Implementing Goals and Objectives from the Transportation Planning Process**



## Countermeasure Objectives

1. Reduce statewide alcohol-related fatal and serious injury crashes;
2. Reduce and mitigate the consequences of single vehicle run-off-the-road fatal and serious injury crashes;
3. Reduce young driver (under age 21) fatal and serious injury crashes;
4. Increase safety belt usage;
5. Reduce American Indian fatal crashes;
6. Reduce fatal and serious injury crashes involving trucks;
7. Reduce fatal and serious injury crashes in urban areas; and
8. Reduce motorcycle fatal and serious injury crashes.

## Management and Decision Support Objectives

9. Establish a process to reduce crashes, injury crashes, and fatal crashes in identified high-crash corridors;
10. Develop and implement a comprehensive, coordinated transportation records and crash reporting, data management, and analysis system, accessible to all stakeholders, to manage and evaluate transportation safety; and
11. Develop an effective and integrated Emergency Medical Service (EMS) delivery system.

Note that Objective 10 is being furthered by this Plan.

## ■ 1.4 Stakeholders for a Montana Traffic Records System

Agencies and organizations recognized in this plan as being vested with a responsibility for transportation safety, and that could benefit from a comprehensive traffic records systems, include:

- **Highway Traffic Safety Office (Part of the Montana Department of Transportation), the Designated Unit for the Governor's Highway Safety Office for Montana** – Responsible for traffic safety program management, problem identification, and countermeasure grant funding.
- **Montana Department of Transportation (MDT)** – Responsible for planning, constructing, and maintaining the roadway infrastructure, and responsible for truck inspection data.
- **Montana Highway Patrol** – Responsible for enforcing laws on state highways and collecting and maintaining crash data.
- **Department of Justice: Motor Vehicle Division** – Registers vehicles and drivers and maintains registration and licensing data and motor vehicle conviction data.
- **Office of Court Administration** – Maintains court and adjudication data.
- **Montana Courts (All Levels)** – Administers convictions and sentences.
- **Metropolitan Planning Organizations; City and County Governments** – Agencies with a vested interest in promoting safety in the urban areas of the State.
- **Tribal Governments** – Unique and autonomous entities with a strong interest in promoting highway safety within their jurisdictions.



- **Department of Public Health and Human Service** – Emergency Medical Services and Trauma Systems Section – responsible for coordinating and improving the delivery of emergency medical services in the State and collecting EMS trip report and state trauma data.
- **Trauma Care Providers** – Those physicians, hospitals, emergency medical services, and long-term care providers who treat persons injured in motor vehicle crashes.
- **Local Law Enforcement Agencies** – That enforce traffic laws and regulations at the local level.

## ■ 1.5 Benefits of Implementing a Traffic Records System

Implementing a systematic approach to managing safety resources is a sound management practice. A traffic records system can provide many benefits that justify the cost and the effort it takes to implement the system. The information it provides can improve an agency's efforts to save lives, reduce injuries, and save agency time and money.

Implementing a traffic records system provides a variety of important benefits by identifying existing safety problems and providing the means for evaluating safety improvement strategies. The most important benefit gained through a traffic records systems will be fewer and less severe collisions on the State's highways. These reductions are the result of consistent, systematic identification of the most critical safety needs and selection of the most effective countermeasures. This is achieved by integrating data from multiple agencies. In general, by integrating a variety of different data sources, it is possible to achieve:

- Better safety problem identification;
- Evaluation of program and countermeasure effectiveness; and
- Tracking of statewide trends.

Specific action that can be achieved with a traffic records systems include the ability to:

- Identify trends in crash patterns (e.g., large trucks, alcohol-involved);
- Identify components of the highway infrastructure that produce unsafe conditions (e.g., geometric deficiencies, outdated design, highway "furniture");
- Identify locations that have a higher rate of crashes than otherwise might be expected;
- Track individuals involved in risky driving behavior from citation through conviction;
- Evaluate education and enforcement strategies for their effectiveness in reducing crashes;

- Develop performance measures for ongoing tracking of progress toward safety goals;
- Provide an efficient communication and information sharing network among all agency transportation safety administrators, including Emergency Services, Law Enforcement, and Education;
- Provide greater certainty that the highest-priority needs are identified; and
- Integrate drivers and vehicles with roadways into safety programs.

## ■ 1.6 Methodology: How Deficiencies in Current Traffic Records System Were Identified

Several efforts converged to identify deficiencies in current data systems and institutional processes:

- As previously mentioned, the Traffic Records Assessment conducted in April 2004 provided a comprehensive critique of current data and processes.
- The State recently sponsored a NHTSA Alcohol Assessment Review Panel review, which included recommendations for improving the traffic records system. The major recommendations from this Assessment were:
  1. Work with tribal governments toward incorporation of Native American reservation data into the statewide database. Include summary data on all crashes, DUI citations, convictions, and sentences.
  2. Include Native American representation in the current strategic planning process for state and tribal records, and on the State's Traffic Records Coordinating Committee.
  3. Use the "FullCourt" system data to document and analyze trends in DUI citations, convictions, and sentences. Specifically identify DUI repeat offender data for citations, convictions, and crashes by county or geographic area.
  4. Gather, compile, and analyze information on severe injury crashes as the data become available from other sources, such as Emergency Medical Services and hospitals.
  5. Adopt a statewide electronic uniform traffic citation form as a way to achieve timely, consistent data reporting on DUI and other offenses.
- Independent of traffic records reviews, the Team 261 effort initiated by the State legislature resulted in the Department of Justice undertaking a major overhaul of the

information systems used for vehicle registration and driver licensing. Deficiencies in those systems were identified during the user requirements process.

- Interviews conducted in May and August 2005 by the MT-TReSP contractor.

## ■ 1.7 Measuring Progress Towards Achieving Safety Goals

The Comprehensive Transportation Safety Plan, under development as of this writing, will provide the basis for monitoring progress in achieving safety goals. In fact, the goals and objectives listed in Section 1.2 are highly quantitative and can be tracked by developing performance measures based on them. Both of the main goals involve tracking crash rates, so these rely on combining data from crash records and the traffic monitoring system (for VMT). Monitoring progress on the objectives is as follows:

1. Reduce statewide alcohol-related fatal and serious injury crashes – Derived from crash data.
2. Reduce and mitigate the consequences of single vehicle run-off-the-road fatal and serious injury crashes derived from crash data and trauma data to develop better estimates of crash outcomes (severity) to victims.
3. Reduce young driver (under age 21) fatal and serious injury crashes – Derived from crash data.
4. Increase safety belt usage – Derived from crash data and independent surveys (two separate performance measures).
5. Reduce Native American fatal crashes – Derived from crash data reported by tribal agencies.
6. Reduce fatal and serious injury crashes involving trucks – Derived from crash data.
7. Reduce fatal and serious injury crashes in urban areas – Derived from crash data.
8. Reduce motorcycle fatal and serious injury crashes – Derived from crash data.
9. Establish a process to reduce crashes, injury crashes, and fatal crashes in identified high-crash corridors – Derived from crash data.
10. Develop and implement a comprehensive, coordinated transportation records and crash reporting, data management, and analysis system, accessible to all stakeholders, to manage and evaluate transportation safety – Will be measured by the types and sophistication of analyses done to support safety analyses and by the range of stakeholders accessing the data in the system.

11. Develop an effective and integrated Emergency Medical Service (EMS) delivery system – Will require the development of specific performance measures that will be developed using data from the trauma information system. Performance measures will likely relate to the speed of service provided (time from crash to on-scene arrival, time from crash to arrival at hospital), and medical outcomes of victims.

## ■ 1.8 Performance Measures for Tracking Progress of Traffic Records System Improvement

### Identification of Performance Measures and Setting Performance Targets

Table 1.1 provides the NHTSA-recommended performance measures for tracking the overall progress of improvements to the components of the Montana traffic records system. Where feasible quantifiable performance measures and targets have been established over a four-year timeframe. In other cases, qualitative measures have been established because they more closely match the situation in Montana.

### Accountability at Plan and Project Level

The performance measures and targets listed above form the basis for monitoring progress at the Plan level. In addition, milestones and a “Measurement of Progress” item have been included in the individual project descriptions.

## ■ 1.9 Scope of the MT-TReSP

The period intended to be covered by the MT-TReSP is a five-year period from January 2006 to December 2010. It is recommended that the MT-TReSP be reviewed no later than 2008 for relevance to current safety data problems in Montana. The Action Plan presented in Section 3.0 should be reviewed every year and adjusted accordingly.

**Table 1.1 Performance Measures for Tracking Progress of MT-TReSP Actions**

Data Quality Attribute                      Deficiency/ Attribute                      Performance Measure		Targets						Comments
		Benchmark	2006	2007	2008	2009	2010	
Data Type: Crash Data								
Timeliness	Time between crash and entry	90 days	90 days	60 days	60 days	30 days	30 days	
	Time between crash and analysis availability	100 days	100 days	70 days	70 days	30 days	30 days	
Consistency	MMUCC compliance	90%	90%	90%	90%	98%	98%	Make nearly 100% MMUCC compliant on next PAR revision; “linked data” study will help; extra data items may lead to incompleteness in field data entry
	ANSI D16.1-1996	Compliant						
	ANSI D20.1-1993	Compliant						
	Single statewide PAR	No	No	No	No	Achieved	Achieved	
Completeness	Underreporting/Same reporting threshold statewide	No threshold	No threshold	Implemented	Implemented	Implemented	Implemented	Not specified as a percent since under-reporting is not known
	All fields completed for all records	90%	95%	99%	99%	99%	99%	
Accuracy	Percent passing new QC procedures	(unknown)	(unknown)	75%	90%	95%	95%	
Accessibility	Database accessible to primary users	Compliant						
	Database accessible to local users	Not accessible	Not accessible	Not accessible	Accessible	Accessible	Accessible	
Data Integration	Capable of being integrated with other sources:							Recommended in TReSP
	(1) Percent of crash records matched successfully with: Vehicle, Driver, Court, Injury Surveillance Systems	Unknown; awaiting system upgrades before integration is possible						
	(2) Percent of state crash data matched successfully with FARS	Unknown	Unknown	95%	100%	100%	100%	

**Table 1.1 Performance Measures for Tracking Progress of MT-TReSP Actions (continued)**

Data Quality Attribute	Deficiency/ Performance Measure	Targets						Comments
		Benchmark	2006	2007	2008	2009	2010	
Data Type: Crash Data (continued)								
	(3) Percent of state crash data matched successfully with MCSAP truck crashes	Unknown	Unknown	95%	100%	100%	100%	
Data Type: Roadway Information								
Timeliness	Annual updates	No significant deficiencies						
Consistency	Same data collected statewide	No significant deficiencies						
Completeness	All fields completed for all records	No significant deficiencies						
Accuracy	Percent of state system road-miles capable of being linked with GIS	0%	0%	25%	50%	75%	75%	
	Percent of off-system road-miles capable of being linked with GIS	0%	0%	10%	20%	25%	40%	
Accessibility	Database accessible to primary users	No significant deficiencies						
Data Integration	Capable of being integrated with other sources	No significant deficiencies (see GIS recommendation under “Accuracy”)						Recommended in TReSP
Data Type: Vehicle Information								
Timeliness	Annual updates	Compliant; updated daily						
Consistency	Same data collected statewide	Compliant						
Completeness	All fields completed for all records	Compliant						
Accuracy	Data collection methods should be verified and use latest technology	No significant deficiencies						
Accessibility	Database accessible to primary users	Limited	Limited	Limited	Accessible	Accessible	Accessible	
Data Integration	Capable of being integrated with other sources	Compliant						Recommended in TReSP

**Table 1.1 Performance Measures for Tracking Progress of MT-TReSP Actions (continued)**

Data Quality Attribute                      Deficiency/ Performance Measure		Targets						Comments
		Benchmark	2006	2007	2008	2009	2010	
Data Type: Driver Information								
Timeliness	Conviction backlog; Average length of time to update driver convictions	60 days	60 days	30 days	14 days	7 days	7 days	
Consistency	Compatible with NDR	Compliant						
	Compatible with CDLIS	Compliant						
	Compatible with AAMVANet	Compliant						
Completeness	Driver citations from other states; Percent of other states contributed to citation history	0%	0%	25%	50%	75%	90%	
Accuracy	Data collection methods should be verified and use latest technology	Compliant						
Accessibility	Database accessible to primary users	Accessible	Accessible	Accessible	Accessible	Accessible	Accessible	
Data Integration	Capable of being integrated with other sources	Compliant						
Data Type: Citation/Adjudication								
Timeliness	Delays in posting convictions to driver histories/ Average number of days between conviction and driver history posting	160 days	160 days	30 days	7 days	7 days	7 days	
Consistency	All jurisdiction using same citation form/Percent of jurisdictions using same form	33%	33%	33%	50%	60%	70%	
Completeness	All fields completed for all records	Unknown						
Accuracy	Data collection methods should be verified and use latest technology	No significant deficiencies						
Accessibility	Database accessible to driver control	Not accessible	Not accessible	Accessible	Accessible	Accessible	Accessible	
	Database accessible to court officials	Not accessible	Not accessible	Accessible	Accessible	Accessible	Accessible	
Data Integration	Capable of being integrated with other sources	Compliant						Recommended in TReSP

**Table 1.1 Performance Measures for Tracking Progress of MT-TReSP Actions (continued)**

Data Quality Attribute                      Deficiency/ Performance Measure		Targets						Comments
		Benchmark	2006	2007	2008	2009	2010	
Data Type: Injury Surveillance								
Timeliness	Time between EMS run and data entry	No system	No system	No system	90 days	90 days	30 days	
Consistency	NEMSIS compliance	No system	No system	No system	Compliant	Compliant	Compliant	
Completeness	Percent of EMS runs covered (approximately)	0%	0%	0%	25%	50%	60%	
Accuracy	Training provided to data collectors/ Percent of providers with training	No system	No system	No system	10%	20%	30%	
Accessibility	Summary reports for traffic safety personnel	No system	No system	No system	Available	Available	Available	
	Summary reports for injury control personnel	No system	No system	No system	Available	Available	Available	
	Sanitized individual records accessible	No system	No system	No system	Not available	Available	Available	
Data Integration	Capable of being integrated with other sources	Compliant						Recommended in TReSP



## **2.0 Current Montana Information Systems Related to Traffic Records**

### **■ 2.1 Introduction**

The 2004 TRA report provides a thorough critique of existing information systems connected to traffic records and this critique will not be repeated here. Only topics not covered in the TRA and development since the TRA was completed are included here. A summary of the TRA's recommendations and their current status is provided in Section 2.8.

### **■ 2.2 Montana Traffic Records Coordinating Committee**

Montana's TRCC is comprised of several agencies, as shown below. A single tier structure has been established as the most effective way to integrate individual agency concerns. The Governor's Highway Safety Representative retains the final decision-making authority for any actions taken by the TRCC.

- Management Services Bureau Chief, MHP;
- Crash Records Supervisor, MHP;
- Records and Driver Control Bureau Chief, DOJ;
- Applications Services Bureau Chief, Information Technology Services Division, DOJ;
- Emergency Medical Services and Trauma Systems Section Supervisor, DPHHS;
- Information Technology Director, Office of the Court Administration;
- Federal Highway Administration Representative;
- MCSAP Representative, MDT;
- Safety Management Engineer, MDT;
- Applications Bureau Chief, Information Services Division, MDT;
- Operations Research Analyst, State Highway Traffic Safety Office, MDT;

- Data and Statistics Bureau Chief, Planning Division, MDT;
- Railroad/Highway Safety Section Supervisor, MDT;
- Information Technology Services Division, GIS Bureau Chief, DOA;
- Local Law Enforcement subcommittee representative;
- Tribal subcommittee representative; and
- Judicial subcommittee representative.

## ■ 2.3 Crash Records – Montana Accident Records System (MARS)

Like most states, Montana has modified its police crash investigator's report to make it easier to collect data directly at the crash scene for the Federally mandated Fatality Analysis Reporting System (FARS) and SAFETYNET. Most of the FARS information is collected for all crashes, with a small subset of data collected as a supplement. Most of the large truck crash information (formerly known as the "NGA data elements") is collected as a supplement.

Since 1995, the Model Minimum Uniform Crash Criteria (MMUCC) has been the primary influence on data uniformity. Though not a "hard" standard, MMUCC is nonetheless promoted by U.S. DOT as a model for the type of data that should be collected, including definitions and valid values (codes). The 2004 TRA stated that MARS was "about 90 percent compliant with MMUCC." A more detailed examination was undertaken as part of this work. For the most part, MARS data for fatality and injury crashes match the MMUCC guidelines with the following exceptions:

- Nonlinked Data – MMUCC data **NOT** obtained directly on the Montana Crash Investigator's Report:<sup>3</sup>
  - MMUCC #C7: Location of First Harmful Event;
  - MMUCC #V7: Motor Vehicle Model;
  - MMUCC #V14: Trafficway Description;
  - MMUCC #V20: Sequence of Events (allows for multiple events);
  - MMUCC #V22: Underride/Override;
  - MMUCC #P16: Driver Distracted By; and
  - MMUCC #P18: Alcohol Test Given (participants in fatal crashes only).

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<sup>3</sup> Some data specified in MMUCC are obtained by linking to external files.

- MMUCC “Linked” Data That Are **NOT** Obtained Directly on Montana Crash Investigator’s Report:
  - MMUCC #PL2: Commercial Motor Vehicle Endorsement;
  - MMUCC #PL4: Drug Test Result;
  - MMUCC #PL5: Injury Area;
  - MMUCC #PL6: Injury Description;
  - MMUCC #RL1: Bridge/Structure Identification Number;
  - MMUCC #RL4: NHS;
  - MMUCC #RL5: Roadway Functional Class;
  - MMUCC #RL6: AADT;
  - MMUCC #RL7: Widths of Lanes and Shoulders;
  - MMUCC #RL8: Width of Median;
  - MMUCC #RL9: Access Control;
  - MMUCC #RL10: Railway Crossing ID;
  - MMUCC #RL11: Roadway Lighting;
  - MMUCC #RL12: Pavement Markings, Longitudinal;
  - MMUCC #RL15: Delineator Presence;
  - MMUCC #RL16: Mainline Number of Lanes at Intersection;
  - MMUCC #RL17: Side-Road Number of Lanes at Intersection; and
  - MMUCC #RL18: Total Volume of Entering Vehicles.

Based on the above, the Montana Crash Investigator’s Report is highly compliant with the MMUCC. The exclusions are relatively minor and are not cause for revamping the crash data collection system, although if the process is revised in the future for some other reason, the exclusions should be added. The Report also collects directly several data items that the MMUCC says can be obtained via linking with external files; these are:

- MMUCC “Linked” Data That Are Obtained Directly on Montana Crash Investigator’s Report:<sup>4</sup>
  - MMUCC #PL1: Driver License Restrictions;
  - MMUCC #PL3: Driver License Status;

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<sup>4</sup> These data do not have to be linked to other data systems, as suggested by MMUCC, because they are obtained directly on the Crash Investigator’s Report.

- MMUCC #RL2: Roadway Curvature (actual radius not obtained);
- MMUCC #RL4: Grade (actual percentage grade not obtained);
- MMUCC #RL13: Bikeway; and
- MMUCC #RL15: Traffic Control Type at Intersection.

A major shortcoming of the MARS data base as it is currently defined is that, although the NGA truck crash data elements are coded by police officers on the crash form, they are not input into MARS. Rather, the data are rekeyed specifically for MCSAP reporting. This is not only a duplication of effort, but valuable truck-related data are not available for highway safety analyses.

## ■ 2.4 Roadway Inventory Data – The Road Log

MDT’s roadway inventory (Road Log) contains basic information on geometric and traffic conditions on a segment-by-segment basis. Information useful for safety analyses includes surface type, lane, and shoulder widths, number of lanes, and average annual daily traffic (AADT). However, additional information would be extremely useful in correlating crashes with roadway features:

- **Intersection Characteristics** – Basic information on the intersections present on each section would be of great use, since nonfreeway crashes tend to concentrate around them. At a minimum, the MMUCC data (number of lanes on major/minor streets and type of control) would be valuable. Type of turning lanes at signalized intersections would be valuable as well.
- **Roadway Alignment** – Grade and curve information, similar to the type of data in the Highway performance Monitoring System Sample, would be useful. This format would exceed the requirements of the MMUCC.
- **Additional Cross Section Data** – Median type and width, in accordance with the MMUCC definitions, would be useful.
- **Clear Zone/Roadside Data** – These data are difficult to collect in exact measurements and are likely to change significantly throughout an individual roadway segment. However, basic data on the width of the clear zone and presence of roadway “furniture” (including guardrail and barriers) would be very valuable for safety analyses.
- **Signing and Pavement Delineation** – As with clear zone data, rural nonfreeways are the most important, and the videolog could be used to collect the data. Data would include types of signs on each section and visual quality of edge striping.

## ■ 2.5 Driver Information

The Team 261 initiative is dictating improvements and system upgrades by the Department of Justice for driver licensing, driver history, and vehicle registration data. The new information system will be migrated from a mainframe-based to a server-based system, which will provide wider and better access to data. For citation data, several options are being explored for electronic ticketing, including the e-ticket portion of the Traffic and Criminal Software (TraCS).

Linking driver citations with convictions from the court system is a major function that a traffic records system should provide. This capability currently is being explored as part of the information system redesign. However, there are two issues that may impede this function:

- Under Montana law, noncited driver histories cannot be maintained.
- The tracking of individuals from crash to citation to court outcomes has historically been a problem. Social security numbers were previously used as driver license numbers, but privacy concerns have required that unique driver license numbers now be used. This requires that all systems be capable of using the new driver license numbers to identify individuals.

## ■ 2.6 Injury Tracking Information

Likewise, the information system for tracking EMS responses is being developed. While a trauma registry to track response and care to major trauma patients has been in place in many hospitals for several years, there has not been any comparable EMS database previously. This new EMS system, based on the National EMS Information System (NEMSIS), should provide EMS data needed for safety analyses. Specifically, the On-line Pre-Hospital Information module (OPHI) is based upon the NHTSA NEMSIS standards and is being deployed to all EMS providers. It is expected that all EMS providers will be using the system within three years. A problem that may have to be overcome is that although EMS transport providers are required by law to submit data on their activities, not all of them currently do. This will require that EMS providers be trained in the proper use of the system.

OPHI will contain data on all patients provided medical care outside the hospital. EMS providers are held accountable for their response times, quality of service, and medical care provided and for the cost or value of EMS to the patient and community. As with other medical specialties, EMS providers also are required to prove their effect on patient outcome as a justification for their existence.

All of the data elements being developed in the OPHI system are derived from NEMSIS; no original data elements are being created. In fact, one of the primary functional requirements given to the contractor was that the system be NEMSIS-compliant. As of this writing, final beta testing of the system is being performed, and a final data dictionary is being created. Finally, Montana is one of the 49 states that have signed the NEMSIS MOU.

Two years ago, a “pilot feasibility project” experimented in linking EMS run reports, hospital trauma register data, the Montana Highway Crash Reporting System, and Medicaid. Such a system provides much the same information as the NHTSA-promoted Crash Outcome Data Evaluation System (CODES). This pilot test showed that linkage is indeed possible, even if it must be achieved through probabilistic linking using advanced software because of inconsistencies in data coding and the lack of “universal person identifier” across the data bases (a similar problem to tracking persons through the citation/conviction system). A more permanent linking operation was identified as demanding a significant resource investment, including training knowledgeable personnel to oversee software operations.

## ■ 2.7 Conviction and Disposition Data: The FullCourt System

The Office of Court Administrator as directed by the Judicial Branch’s Commission on Technology and the Commission on Courts of Limited Jurisdiction is implementing a commercial off-the-shelf software package – FullCourt – to manage case loads. FullCourt, is an integrated case management system for criminal, civil, family, probate, juvenile, traffic, and appellate courts. It incorporates probation, jury management, child welfare, diversion court services. FullCourt offers case histories, search capabilities, financial management, court appearance scheduling, and document production.

The Federal Motor Carrier Safety Administration (FMCSA) is providing funds to establish a central repository of Courts of Limited Jurisdiction case information. The Repository includes ALL citations adjudicated in Montana’s courts of limited jurisdiction that use the FullCourt System (95 percent of cases in Montana). An interface with DOJ’s redesigned driver information system is being instituted, and this will yield valuable information for tracking individuals through the citation-to-conviction process. This project is known locally as the “Broker Project,” so named because the software is being implemented as a web-based interface between several systems as a way handling several types of transactions, including:

- Convictions and reinstatements;
- Electronic citations (when implemented);
- Electronic dispositions; and
- Criminal photos and fingerprints.

## ■ 2.8 Montana's Safety Management System (SMS)<sup>5</sup>

MDT developed the SMS for conducting safety analyses. It currently uses crash and traffic data as its sources. It is structured to provide a series of cross-tabulations (frequency tables) which the Highway Traffic Safety Office uses in its annual trend report (*Traffic Safety Problem Identification*). It also is used by the Traffic and Safety Bureau for two main purposes. First, it has a procedure for identifying high-crash locations (done annually). Second, it provides crash characteristics (cross-tabulations) on sections of highway that are undergoing improvements as an input for highway designers to consider. GPS location referencing for crashes is still not available, but should start to appear on crash records thanks to in-vehicle mobile data terminals used for data entry.

Outside of the SMS, the commercial package Intersection Magic can be used for urban intersection crash patterns (within city limits).

## ■ 2.9 Electronic Tribal Records Systems

Recently, four reservations have received grants from the Bureau of Indian Affairs (BIA) Indian Highway Safety Program (IHSP) to develop information systems related to highway safety. They will be using commercial off-the-shelf software developed by the vendor CISCO. The modules in use will be related to crash records, citations, and personnel management. A condition of the grant is that the reservations must report crash data to the State, but this will be done via the IHSP, rather than direct ties to the State. The reservations are required to report all significant fatality data to the IHSP. If this project provides reservation crash data to the State in a usable form, then the Rail, Transit and Planning Division within MDT plans on providing funding to the other three reservations in Montana to purchase the same software and training from CISCO.

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<sup>5</sup> In this report, the term "Safety Management System" refers to the computer-based analysis system for conducting safety studies. In terms of MDT's broader safety program, "Safety Management System" also applied to the *process* for improving highway safety. This process is now part of work done under Montana's Comprehensive Safety Plan.

## ■ 2.10 Summary of Montana Information Systems Related to Crash Records

Since the 2004 TRA, there has been much activity in the upgrading of individual information systems that play a role in a comprehensive traffic records system. As a result, many of the TRA's recommendations are being, or will be, addressed. Table 2.1 provides a status report on how the major recommendations from the TRA are, or will be, dealt with.

Nonetheless, there still are a few remaining issues that must be faced. These issues, along with the results of the interviews, form the basis for the recommendations in this Plan.

- For the purpose of a traffic records system, development of a statewide data warehouse (a TRA recommendation) that embodies all of the individual data systems, is not cost-effective. Keeping the systems separate appears to be the most viable. However, upgrading the SMS to include selected data from the individual systems is cost-effective and is in keeping with the TRA recommendation.
- To accomplish the SMS integration with other data systems, some sort of virtual linking of systems needs to be implemented. For this to be successful, it will be absolutely necessary to develop the “keys” – the common fields used for linking – across the data systems. These include:
  - Location of crash:
    - Getting GPS capability for all crashes requires investment in equipment; and
    - Automatic linking to current roadway locations.
  - Tracking individuals through time and across systems;
  - Other “core” data that is commonly defined across systems; and
  - Adequate metadata to describe all data elements.



**Table 2.1 Status of Traffic Records Assessment Recommendations**

Management and System Issues	Responsible Office and Personnel	Status of Activities	Issues and Problems
Create a single-tiered Traffic Records Coordinating Committee (TRCC). Obtain representation from each organization maintaining any component of the traffic records system capable of committing resources and a working level with knowledge of the operations, requirements, and functionality of the component(s).	MDT, State Highway Traffic Safety Office/Jack Williams	Not undertaken	The current TRCC membership includes personnel who are in a position to influence agency funding decisions. A single TRCC with this type of membership can implement actions more quickly than a two-tiered TRCC structure.
Task the TRCC with the development of a Traffic Records Strategic Plan.	MDT, State Highway Traffic Safety Office/Jack Williams	Underway	
Develop a data warehouse to serve as the inventory and repository of traffic record information. A first step should be to list the data sources and contact personnel for each major Traffic Records System component.	TRCC Working Level MDT, State Highway Traffic Safety Office/Jack Williams	Recommended in MT-TReSP	Development of a formal data warehouse to manage all agencies' data is seen as not being cost-effective. However, an analysis system that integrates the data on a periodic basis is being recommended.
Develop an on-line query tool for users to select and view crash data files of interest. This should be accomplished through a secure, password protected access application that only authorized users can view crash data on-line with the potential of a web-based system to follow.	MDT, Engineering Division, Traffic and Safety Bureau/ Pierre Jomini	Recommended in MT-TReSP	Will be part of enhanced analysis system.
Encourage agencies responsible for citation, conviction, and other data sets to make sanitized data extracts available for use by the traffic safety community in Montana. At a minimum, Montana Department of Transportation (MDT) should be given access to the relevant records for use in problem identification and program evaluation.	TRCC Working Level Convictions: Dept. of Justice, Records and Driver Control Bureau/Greg Noose Citations: Office of Court Administration/ Karen Nelson	Recommended in MT-TReSP	Integration of FullCourt software with driver records and eventual electronic ticketing will enable this function. Linked (sanitized) data will be part of recommended analysis system.

**Table 2.1 Status of Traffic Records Assessment Recommendations (continued)**

Management and System Issues	Responsible Office and Personnel	Status of Activities	Issues and Problems
Conduct an analysis of training needs and develop and implement a training plan.	TRCC Working Level	Recommended in MT-TreSP	
<b>Roadway/Crash</b>			
Convert the three location reference systems in the crash file to a single Global Positioning Satellite (GPS) coordinate system.	MDT, Information Services Division/ Marlin Sander and Skip Nyberg	Recommended in MT-TreSP	
Expedite the effort within MDT to implement GPS and Geographic Information System for location coding and location-based analyses.	MDT; Rail, Transit and Planning Division/Bill Cloud	Underway, but needs to be supported by MT-TreSP actions	Reconciliation of Road Log features (compiled from plan sheets) with data from field measurements still problematic.
Eliminate the approval process for the release of the “sanitized” crash database.	MDT, Engineering Division, Traffic and Safety Bureau/Pierre Jomini	Recommended in MT-TreSP	
Develop a web-based capability for interested parties to download the sanitized crash data file and/or to access an easy-to-use query tool for generating reports on-line based on the unrestricted crash data.	MDT, Engineering Division, Traffic and Safety Bureau/Pierre Jomini	Recommended in MT-TreSP	
Develop and deliver crash report training to law enforcement throughout the state.	Dept. of Justice, Montana Highway Patrol/Mike Tooley	Being incorporated into Academy training	
Pursue efforts to acquire crash report information from crashes investigated by Tribal Enforcement agencies.	Dept. of Justice, Montana Highway Patrol/Jesse Munro	COTS systems being deployed on two reservations	Data does not directly to state but to the Bureau of Indian Affairs
Expedite the revision of Montana Accident Reporting System to accept crash reports electronically.	Dept. of Justice, Montana Highway Patrol/Jesse Munro	Pending, but needs to be supported by MT-TreSP actions	
Develop a top 10 list of most common errors, inconsistencies, and omitted fields from the crash report. Circulate this list to all law enforcement asking for their assistance in reducing these reporting problems. Update and recirculate the list on a six-month or yearly basis. Recognize departments that show noticeable improvement.	Dept. of Justice, Montana Highway Patrol/Connie Petek	Recommended in MT-TreSP	

**Table 2.1 Status of Traffic Records Assessment Recommendations (continued)**

Management and System Issues	Responsible Office and Personnel	Status of Activities	Issues and Problems
<b>Driver</b>			
Automate the driver file so that it performs for all Montana drivers all of the functions that characterize the Commercial Driver License Information System capabilities and provides full use of the Problem Driver Pointer System. This is admittedly a long-range effort which has been scheduled.	Dept. of Justice/Greg Noose	System redevelopment underway, although full functionality specified in the TRA may not be achieved in the short term	
Incorporate the driver histories, especially convictions for serious offenses, from prior states of record when licensing drivers from other states.	Dept. of Justice/Greg Noose	System redevelopment underway that will address this function	
Begin the process of translating the conviction information from other states in a manner consistent with the CDLIS processes using the AAMVAnet Coding Dictionary as soon as possible even using manual procedures			
Incorporate the driver histories, especially convictions for serious offenses, from prior states of record when licensing drivers from other states.			
Coordinate plans for upgrading the driver license system with those components of a comprehensive statewide traffic records system that will be affected by the TEAM 261 effort, especially those involved in developing electronic crash and citation data collection systems.	Dept. of Justice/Greg Noose	Underway	
Obtain from the courts or the Department of Health and Human Services the convictions for Minors in Possession and record the court suspensions until the license restorations occur.	Office of Court Administration/ Karen Nelson  Dept. of Public Health and Human Services, Chemical Dependency Bureau/Chuck Michaud		
Assure receipt of all conviction information from all courts now being withheld or changed by some of the courts.	Office of Court Administration/ Karen Nelson and Jim Oppedahl	Underway with the implementation of FullCourt	

**Table 2.1 Status of Traffic Records Assessment Recommendations (continued)**

Management and System Issues	Responsible Office and Personnel	Status of Activities	Issues and Problems
<b>Citation</b>			
Design and implement a centralized statewide citation tracking system containing information about a citation from “cradle to grave.” Each record in the system should contain information about all actions pertaining to that citation, including the disposition.	Dept. of Justice, Montana Highway Patrol/Mike Tooley  Office of Court Administration/ Karen Nelson  Dept. of Justice, Driver and Record Control/Greg Noose	Electronic ticketing and integration of FullCourt with driver records should address this	
Develop a uniform set of data elements for citations that identifies at a minimum the type of violation, location, date and time, the enforcement agency, and court of jurisdiction.	Office of Court Administration/ Karen Nelson  Dept of Justice, Driver and Record Control/Greg Noose	Underway via FullCourt and “Broker” projects	
Develop and implement uniform procedures and guidelines for Courts of Limited Jurisdiction for processing traffic citations insuring that defendants are advised of their rights.	Office of Court Administration/ Karen Nelson  Dept of Justice, Driver and Record Control/Greg Noose	Underway via FullCourt and “Broker” projects	
Integrate all legacy systems containing data about arrests and dispositions with the FullCourt and Justice Case Management Systems in order to insure data sharing among the courts, Motor Vehicles Division, and other stakeholders.	Office of Court Administration/ Karen Nelson  Dept of Justice, Driver and Record Control/Greg Noose	Underway via FullCourt and “Broker” projects	
<b>EMS/Trauma</b>			
Pursue rapid development and implementation of a computerized, statewide EMS and Trauma data collection system to include linkages to other components of the traffic records system.	Dept. of Health and Human Services, EMS and Trauma Systems Section/ Jim DeTienne	Underway	
Develop a detailed EMS and trauma data dictionary that provides a solid format for consistent and quality data. Include field length, field characteristics, and data element definition.	Dept. of Health and Human Services, EMS and Trauma Systems Section/ Jim DeTienne	Part of updated system being developed; NEMSIS data definitions being followed	

**Table 2.1 Status of Traffic Records Assessment Recommendations (continued)**

Management and System Issues	Responsible Office and Personnel	Status of Activities	Issues and Problems
<b>EMS/Trauma (continued)</b>			
Pursue eligible State and Federal highway traffic safety funding opportunities.	Dept. of Health and Human Services, EMS and Trauma Systems Section/ Jim DeTienne	Underway	
Provide information and education related to traffic safety records and fatality data at EMS and Trauma Advisory Committee meetings and stakeholder meetings.	Dept. of Health and Human Services, EMS and Trauma Systems Section/ Jim DeTienne	New NEMSIS-based system will address this	
Provide the EMS providers and trauma facilities with an avenue to utilize their data and make a difference in their profession and patient care modalities.	Dept. of Health and Human Services, EMS and Trauma Systems Section/ Jim DeTienne	New NEMSIS-based system will address this	
Pursue the inclusion of nondesignated hospitals that treat or transfer trauma patients into the EMS and Trauma Systems and data collection activities.	Dept. of Health and Human Services, EMS and Trauma Systems Section/ Jim DeTienne	New trauma systems rules have recently been adopted with provide for the trauma designation of all hospitals. While designation is voluntary, these new rules require all facilities to provide minimal data to the State trauma register.”	
Educate all stakeholders about the important benefits of EMS and trauma data.	TRCC Working Level EMS and Trauma Systems Section/ Jim DeTienne	Recommended in MT-TReSP	
Become a member of the TRCC as recommended in the 2004 TRA.	TRCC Working Level	Complete	



## 3.0 Traffic Records Strategic Plan Elements

### ■ 3.1 The Role of the TRCC

The TRCC is a statewide stakeholder forum created to facilitate the planning, coordination and implementation of projects to improve the State's traffic records system. As such, the TRCC is the body responsible for improving the timeliness, quality, completeness, integration, and accessibility of the data used to support highway safety analyses in Montana. The TRCC is a partnership of state and local interests from the transportation, law enforcement, criminal justice, and health professions. This traffic records coalition fosters understanding among stakeholders and promotes the use of safety data in identifying highway safety problems and developing effective countermeasures to improve highway safety.

This Plan is the blueprint for TRCC activities over the next five years. The Action Plan presented below includes many self-contained projects that must be undertaken either by state personnel or contractors. The TRCC is responsible for overseeing these projects from start to finish. This responsibility will include contractor selection if it is decided that a project is best suited to contractor support. It will probably be more effective if subcommittees of two to four members are formed to oversee the conduct of individual projects, rather than burden the entire TRCC with responsibility for all projects. In the Action Plan presented below, suggestions have been made for lead agencies for each activity. TRCC members representing those agencies should be responsible for directing these activities. TRCC members also will be asked to foster awareness of highway safety analyses and the need to supply data for it within their home agencies.

***Immediate Action by the TRCC:*** The Action Plan presented below has several activities for the TRCC to undertake over the five-year period covered by the MT-TReSP. However, one item requires immediate attention. The TRCC must ensure that if Federal funds under Section 408 of the highway legislation are secured, that the State has the authority to spend the funds on the wide variety of actions recommended across the various state agencies.

## ■ 3.2 MT-TReSP Goals and Objectives

The starting point for the MT-TReSP is the definition of goals and objectives. These were based on what aspects of traffic records system development need to take place, after reviewing what recommendations from the 2004 TRA have not been fulfilled and what agencies felt needed to be done (derived from the interviews).

The overall goal of the MT-TReSP is to improve the traffic records systems used to conduct highway safety analyses in Montana. The ideal result in this regard is the development of an enhanced Safety Management System, a new information management system designed to integrate data from several sources and to perform sophisticated highway safety analyses.

To achieve this goal, three objectives were identified:

1. **Improve the Operation of the Traffic Records Coordinating Committee (TRCC) –** The TRCC is the main body for developing and overseeing a traffic records system. It also is the mechanism for bringing together the stakeholder agencies, and the primary way in which outreach can be accomplished internally to Montana state government (e.g., it could provide input to the state legislature and executive branch on matters related to traffic records – as a body representing multiple agencies, this would be much more effective than a single agency trying to communicate needs.) In other words, the TRCC should become the “spokesperson” for issues related to traffic records systems – including upgrades to individual agencies’ data systems and their integration into an enhanced SMS. In addition, the TRCC should be the focal point for most (maybe all) interaction with Federal agencies when it relates to traffic records and their supporting data systems (FARS and MCSAP). This includes supporting grant requests from individual agencies as well as applying for the newly authorized Section 408 grants specifically targeted at improving traffic records systems.
2. **Improve the Individual Data Systems that Supply Information to the Safety Management System –** Much progress has and is being made in upgrading individual systems, but more remains to be done. The interviews conducted for this study identified several areas where improvements could be made, and these have been woven into the Action Plan.
3. **Develop an Enhanced Safety Management System to Promote Additional Types of Safety Analyses –** The SMS currently provides support in roadway-related crash analyses, but does *not*:
  - Support vehicle-related safety analyses with data on and physical characteristics, age, condition, and safety devices present;
  - Support human-related safety analyses with data on experience, physiological and psychological condition, and driver training; and
  - Support safety analyses of the interaction between post-collision factors (EMS, hospital treatment, rehabilitation).



Further, it is clear that even for roadway-related crash analyses, improvements could be made in the coding and reporting of crash location, and linking the location to roadway features.

### ■ 3.3 MT-TReSP Action Plan

Table 3.1 shows the specific *new* actions that are recommended in order to implement a comprehensive traffic records system and process in Montana. (As shown in Table 2.1, there are already many activities underway that address system deficiencies.) These are tied to the three objectives. Many of the actions have been defined as projects to be undertaken by Montana agency staff or under contract. Approximate budgets and schedules have been assigned. Figure 3.1 shows the schedule for implementing the activities and projects over the five-year period (calendar years 2006-2010) covered by this Plan.

**NOTE:** *The projects defined in Table 3.1 were developed specifically for this Plan and have not yet been implemented. In addition, the projects chronicled in Table 2.1, which are either currently underway or will be shortly, are an integral part of the MT-TReSP. For the most part, this latter group of projects have been developed to enhance information systems owned by individual state agencies in order to advance their primary missions, but they also have residual effects for enhancing traffic records in Montana.*

In order to fund the actions, Montana must rely on successful application to NHTSA for Section 408 funds (State Traffic Safety Information System Improvements grants). Under the SAFETEA-LU legislation, states that submit successful grant applications will receive no less than \$300,000 in the first year and no less than \$500,000 in successive years. Assuming these funding levels, it will require five years of successive grant applications to fully fund all the activities in the Action Plan, currently budgeted at \$3,015,000 over a five-year period. Additionally funding beyond the Section 408 grants are also proposed for the new projects listed in Figure 3.1, including in-kind service and FMSCCA grants (CVARS and MCSAP).

In terms of funding, approximately 40 percent of the budgeted \$3,015,000 is targeted at the third goal area, Enhance the Safety Management System to Promote Additional Types of Safety Analyses. This will be a relatively large-scale information management system development that will be difficult to fund without Section 408 grant assistance. While many other activities in the Action Plan can be absorbed within agency operating budgets, the Enhanced SMS cannot, nor has any other source of funding been identified to finance it. However, even without it, if the other activities are acted upon, substantial gains in the quality, coverage, and use of safety data will be attained. It may be possible that FMCSA grants may be used to cover system development costs at least partially.

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan**

<b>MT-TReSP Objective</b>	<b>Activity/Description</b>	<b>Responsible Agencies</b>	<b>Schedule</b>	<b>Budget<sup>a</sup></b>
1. Improve the Operation of the Traffic Records Coordinating Committee (TRCC)	<p><b>1.1 Formalize and Focus TRCC Meetings</b></p> <p><i>Purpose:</i> To develop standing agenda items to be discussed every meeting:</p> <p><i>Description:</i></p> <ul style="list-style-type: none"> <li>1.1.1 System development updates by agencies.</li> <li>1.1.2 Status of other projects defined in this Action Plan, including contractor progress if they are used.</li> <li>1.1.3 Discussion of “core data” for linking systems, especially the implications for linking to legacy data and the SMS; core data elements include those related to location referencing, crash identification, and tracking persons (and perhaps vehicles) across data systems. The issue of null versus “structural zeros” for data fields is one of the issues that needs to be addressed. This should begin immediately with a subcommittee of the TRCC and develop information, scope, and direction for Project 3.2.</li> <li>1.1.4 Updates on education and training activities, including identifying new training needs.</li> <li>1.1.5 Presentation of recent data analyses and data use by members.</li> <li>1.1.6 Recruiting of new members for the TRCC.</li> <li>1.1.7 Status of grant requests.</li> <li>1.1.8 Issues associated with eliminating the “short form” for police reporting of crashes (HQ1599-S) in favor of the “long form” (HQ1599) to be used for all police investigated crashes.</li> </ul> <p><i>Measurement of Progress:</i> Regular meetings of the TRCC</p>	Highway Traffic Safety Office, Jack Williams	Ongoing <i>Milestones, Deliverables, and Reporting:</i> At least semiannual meetings of the TRCC; Agendas for TRCC meetings	In-kind effort

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>1.2 Monitor and Promote Progress on New Information Management Initiatives</b></p> <p><i>Purpose:</i> To ensure that TRCC memberships take a leadership role in developing and coordinating information systems progress.</p> <p><i>Description:</i> Tasks will be developed as they emerge from agencies. An immediate task is to provide input to the e-ticket/electronic citation initiatives being undertaken by the Highway Patrol.</p> <p><i>Measurement of Progress:</i> Success in implementing new IT initiatives</p>	TRCC members	<p>Ongoing</p> <p><i>Milestones, Deliverables, and Reporting:</i> As needed</p>	In-kind effort
1. Improve the Operation of the Traffic Records Coordinating Committee (TRCC) (continued)	<p><b>1.3 Privacy Concerns with Sharing Traffic Records Information</b></p> <p><i>Purpose:</i> To develop a policy that addresses potential privacy concerns as the sharing and dissemination of traffic records information increases</p> <p><i>Description:</i> Task the TRCC with developing a review and recommendations on how data use and sharing will maintain confidentiality and privacy of citizens. Submit any recommended changes to the TRCC so that they can work with legislative committees to draft new legislation.</p> <p><i>Measurement of Progress:</i> Number of times privacy issues are successfully dealt with</p>	TRCC members	<p>Review: 3 months; remainder will be an ongoing activity</p> <p><i>Milestones, Deliverables, and Reporting:</i> Technical memo @3 months</p>	In-kind effort
	<p><b>1.4 TRCC Support Structure</b></p> <p><i>Purpose:</i> To expand TRCC membership and develop smaller working groups for specific issues</p> <p><i>Description:</i> Form 3 separate committees which will be subgroups below the TRCC, but not part of the TRCC:</p> <ul style="list-style-type: none"> <li>• Reservation Subgroup;</li> <li>• Local Law Enforcement Subgroup; and</li> <li>• Judicial Subgroup (judges, prosecutors).</li> </ul> <p><i>Measurement of Progress:</i> Number of annual reports to the TRCC by subgroups</p>	Highway Traffic Safety Office, Jack Williams	<p>Ongoing</p> <p><i>Milestones, Deliverables, and Reporting:</i> Annual reporting to TRCC</p>	In-kind effort

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>1.5 Traffic Records Education and Outreach Program</b>  <i>Purpose:</i> To develop an Education and Outreach Program for existing and prospective stakeholders, upper management, and legislature  <i>Description:</i></p> <p>1.5.1 Develop brochure and 45-minute briefing presentation on why safety records coordination is important and what MT is doing; update annually</p> <p>1.5.2 Produce an annual report documenting TRCC activities and upcoming events/milestones (provide minutes of each meeting with agenda of next meeting).</p> <p>1.5.3 Provide MPOs with crash data and feedback. (<i>Measurement of Progress:</i> Number of requests fulfilled)</p>	Highway Traffic Safety Office, Jack Williams	<p>1. 6 months  <i>(Milestones:</i> brochure plus briefing)  2. Complete first cycle within a year  <i>(Milestones:</i> Annual Reports)  3. Ongoing  <i>(Milestones:</i> Number of requests fulfilled)  4. Ongoing</p>	<p>1. In-kind effort  2. In-kind effort  3. In-kind effort  4. \$10,000 per year (Section 408)</p>
1. Improve the Operation of the Traffic Records Coordinating Committee (TRCC) (continued)	<p>1.5.4 Identify compendia of best practices, peer exchange, and peer-to-peer programs within NHTSA, DOJ, FHWA, FMCSA, and TRB; fund travel for peers; suggested areas for immediate attention:</p> <ul style="list-style-type: none"> <li>a. Mobile data terminal use and application;</li> <li>b. Conversion of state Roadway Log (roadway inventory) to GPS location referencing;</li> <li>c. Data integration methods; and</li> <li>d. Quality control procedures for crash, citation, EMS, and driver data.</li> </ul> <p><i>Measurement of Progress:</i> Number of peer exchanges conducted</p>			
	<p>1.6 Apply for first and successive year grants under Section 408 of SAFETEA-LU (<i>State Traffic Safety Information System Improvements</i>).</p>	Highway Traffic Safety Office, Jack Williams	Ongoing	In-kind effort

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

<b>MT-TReSP Objective</b>	<b>Activity/Description</b>	<b>Responsible Agencies</b>	<b>Schedule</b>	<b>Budget<sup>a</sup></b>
	<p><b>1.7 Annual Traffic Records Progress Report</b></p> <p><i>Purpose:</i> To provide an annual update on progress in meeting traffic records goals and objectives</p> <p><i>Description:</i> Document in the <i>Annual Traffic Safety Problem Identification Report</i> a section that provides a progress report for use of Section 408 funds:</p> <p>1.7.1 Discusses the progress made in achieving the goals of the MT-TReSP; and</p> <p>1.7.2 Discusses the implementation status of each identified action/project in the MT-TReSP.</p> <p><i>Measurement of Progress:</i> N/A</p>	Highway Traffic Safety Office, Jack Williams	Ongoing <i>Milestones, Deliverables, and Reporting:</i> Annual report section	In-kind effort
	<p><b>1.8 Grant Writing Support for Individual State Agencies (non-NHTSA).</b></p> <p><i>Purpose:</i> To provide grant writing support for state agencies in pursuing Federal grants (non-NHTSA)</p> <p><i>Description:</i></p> <p>1.8.1 Develop a list of available Federal grants that could be used to improve individual systems. Update annually.</p> <p>1.8.2 Provide technical support for grant-writing for individual agencies who wish to apply for Federal grants (consultant or university assistance).</p> <p><i>Measurement of Progress:</i> Success rate in grant requests</p>	Highway Traffic Safety Office, Jack Williams	Ongoing <i>Milestones, Deliverables, and Reporting:</i> As needed	<p>1. In-kind effort</p> <p>2. \$10,000 per year (from state funds, not Section 408)</p>
1. Improve the Operation of the Traffic Records Coordinating Committee (TRCC) (continued)	<p><b>1.9 MT-TReSP Updates</b></p> <p><i>Purpose:</i> To provide revisions to the Traffic Records Strategic Plan</p> <p><i>Description:</i> Task the TRCC to update the strategic plan every three to five years, at a minimum, and revise the action plan at least each year as needed.</p> <p><i>Measurement of Progress:</i> Positive change in TReSP performance measures for each information system</p>	Highway Traffic Safety Office, Jack Williams	Ongoing <i>Milestones, Deliverables, and Reporting:</i> Annual updates to Action Plan	<p>In-kind effort for Action Plan updates</p> <p>\$50,000 per complete TReSP update (Section 408)</p>

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>1.10 Traffic Records Technical Training</b></p> <p><i>Purpose:</i> To keep TRCC members up to date on the most recent developments from around country in traffic records improvements</p> <p><i>Description:</i> Organize and sponsor forums, summits, and training courses on highway safety. Assess the need to hold repeat venues as they are updated and conditions change. Identify nationally sponsored training courses that would benefit TRCC members (e.g., NHTSA, NHI) – report back to TRCC.</p> <p><i>Measurement of Progress:</i> Positive change in TReSP performance measures for each information system</p>	Highway Traffic Safety Office, Jack Williams	Ongoing <i>Milestones, Deliverables, and Reporting:</i> As needed	\$15,000 per year (Section 408)
2. Improve the Individual Data Systems that Supply Information to the Safety Management System (SMS)	<p><b>2.1 GPS-Based Location Referencing for Crash Data</b></p> <p><i>Purpose:</i> To convert the three location reference systems in the crash file to a single Global Positioning Satellite (GPS) coordinate system (original TRA recommendation).</p> <p><i>Description (Tasks):</i></p> <ul style="list-style-type: none"> <li>2.1.1 Review status of GPS use by police officers for coding crash locations</li> <li>2.1.2 Assess costs of expanding GPS-based data collection to all police departments.</li> <li>2.1.3 Develop GPS guidelines to be used when police upgrade to MDTs, including use of GPS devices in the field</li> <li>2.1.4 Establish funding support for police agencies to purchase GPS and integrate with MDTs if required</li> <li>2.1.5 Revise MARS system to accept GPS coordinates</li> </ul> <p><i>Measurement of Progress:</i> Percent of crash reports with GPS coordinates used, tracked annually</p>	MDT	<p>24 months</p> <p><i>Milestones, Deliverables, and Reporting:</i> Task Reports</p> <p>Task 1: @3 months</p> <p>Task 2: @5 months</p> <p>Task 3: @8 months</p> <p>Task 4: N/A</p> <p>Task 5: @24 months</p>	\$300,000 (Section 408)

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>2.2 Convert Roadway Log to GPS-Based Location Referencing</b></p> <p><i>Purpose:</i> To complete the harmonization of the Roadway Log features with GPS coordinates.</p> <p><i>Description:</i> The location reference system is currently mile marker based, but MDT is migrating to an x, y coordinate location referencing system. Over the past six years the MDT captured location coordinates on the 13,000-mile state system through the use of Global Positioning Satellite (GPS) devices. During this survey process they also collected road information by photo logging the same sections of highway and tying the location to the GPS coordinates.</p> <p><i>Measurement of Progress:</i> Percent of highway miles in the roadway inventory with beginning and ending section IDs linked to GPS</p>	MDT (Bill Cloud)	<p>24 months</p> <p><i>Milestones, Deliverables, and Reporting:</i></p> <p>Methodology Report: @3 months</p> <p>Initial Testing: @12 months</p> <p>Final Testing: @22 months</p> <p>Final report: @24 months</p>	\$100,000 (Section 408; MDT to provide additional in-kind labor)
	<p><b>2.3 Update PAR Coding Instruction Brochure</b></p> <p><i>Purpose:</i> To provide police officers with instructions for collecting accurate crash data</p> <p><i>Description (Tasks):</i></p> <p>2.3.1 Review recent PAR coding instruction brochure against brochures use din other states</p> <p>2.3.2 Consider revising instructions for: 1) location; 2) collision type; 3) VIN; 4) contributing factors; 5) first and most harmful events; 6) DOT/ICC/MVI numbers (trucks); and 7) other data as specified by the TRCC; to be used primarily by officers in the field, but also may help in revisions to Academy training.</p> <p>2.3.3 Include guidance on the use of GPS via mobile data terminal to obtain location data (location of crash versus location of police vehicle).</p> <p><i>Measurement of Progress:</i> Number of brochures distributed to police officers</p>	Highway Traffic Safety Office, Jack Williams	<p>9 months</p> <p><i>Milestones, Deliverables, and Reporting:</i> Revised brochure</p>	\$15,000 for development of the information (printing to done with in-kind effort)

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
2. Improve the Individual Data Systems that Supply Information to the Safety Management System (SMS) (continued)	<p><b>2.4 Software Upgrades for Crash Data Collection</b>  <i>Purpose:</i> To automate the mechanism for collecting crash data by police officers and tribes.  <i>Description (Tasks)</i></p> <p>2.4.1 Direct linking of mobile data terminal-collected data with Records Management System (paperless entry via thumb drives).</p> <p>2.4.2 Add NGA supplemental truck data elements to MARS data base; eliminate duplicate data entry processes<sup>b</sup>.</p> <p>2.4.3 Additional automated quality control checks to mobile data terminals and Records Management System processing. Identify QC checks based on experience of other states.</p> <p>2.4.4 Translation of tribal crash data submitted via the Indian Highway Safety Program (BIA) to MARS format.</p> <p><i>Measurement of Progress:</i></p> <ol style="list-style-type: none"> <li>1. Percent of MDT-collected records input via paperless entry</li> <li>2. Percent of truck crashes input via paperless entry</li> <li>3. Percent of records passing QC checks</li> <li>4. Number of tribal crashes obtained</li> </ol>	Highway Patrol, Mike Tooley	<p>12 months for each task</p> <p><i>Milestones, Deliverables, and Reporting:</i> User's Guides for each piece of software developed</p>	<p>Section 408 funds:</p> <ol style="list-style-type: none"> <li>1. \$50,000</li> <li>2. \$50,000</li> <li>3. \$40,000</li> <li>4. \$35,000</li> </ol>



**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>2.5 Improvements to the Roadway Log</b></p> <p><i>Purpose:</i> To provide additional geometric data useful in safety analyses</p> <p><i>Description (Tasks):</i></p> <p>2.5.1 Implement additional data elements to the Roadway Log:</p> <ul style="list-style-type: none"> <li>• Intersection characteristics. At a minimum, the MMUCC data (number of lanes on major/minor streets and type of control) would be valuable. Type of turning lanes at signalized intersections would be valuable as well.</li> <li>• Roadway alignment. Grade and curve information, similar to the type of data in the HPMS Sample.</li> <li>• Additional cross section data: Median type and width, in accordance with the MMUCC definitions.</li> <li>• Clear zone/roadside data/slope.</li> </ul>	MDT, Bill Cloud	<p>24 months</p> <p><i>Milestones, Deliverables, and Reporting:</i> Revised data dictionary and data user's guide for roadway inventory (log) file</p>	<p>\$100,000 (Section 408), MDT to provide additional in-kind effort for annual data collection.</p>
2. Improve the Individual Data Systems that Supply Information to the Safety Management System (SMS) (continued)	<p>2.5.2 Develop a universal segment/project length definition for use by all units within MDT (define common beginning and ending points for roadway sections/segments used in all MDT information systems, e.g., Roadway Log, Pavement Management Systems).</p> <p>2.5.3 Integrate enhanced road log with the current crash analysis programs.</p> <p><i>Measurement of Progress:</i> Percent of highway miles with new geometric data available</p>			

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>2.6 Tribal Citation and Conviction Data Collection System</b>  <i>Purpose:</i> To develop system for obtaining citation and conviction data from tribal courts, for use in the SMS (rather than transmitting to DOJ).  <i>Description (Phases):</i></p> <p>2.6.1 Phase 1: Conduct a feasibility study of options for getting citation and conviction data from tribal courts while maintaining anonymity of individuals. Determine if it is even possible to do so, given sensitivity of tribes to privacy of information.</p> <p>2.6.2 Phase 2: Develop interface to tribal software (CISCO products) for processing and transmitting the data to the SMS. (Contingent on results of Phase 1)</p> <p><i>Measurement of Progress:</i> Number of tribal citation and conviction records obtained annually</p>	Highway Traffic Safety Office, Jack Williams	<p>Phase 1: 4 months  Phase 2: 9 months  <i>Milestones, Deliverables, and Reporting:</i>  Phase 1: Report  Phase 2: User's Guide for Software</p>	<p>Section 408 funds:  Phase 1: \$25,000  Phase 2: \$75,000</p>
	<p><b>2.7 Development of E-Ticket Citation System</b>  <i>Purpose:</i> To implement electronic ticketing (citations) statewide  <i>Description:</i> Cost-share the development of the e-ticket/electronic citation initiative being undertaken by the Highway Patrol.  <i>Measurement of Progress:</i> Percent of traffic-related citations issued via e-ticket</p>	Highway Traffic Safety Office (Jack Williams); Highway Patrol (Mike Tooley)	<p>12 months  <i>Milestones, Deliverables, and Reporting:</i>  Determined by ongoing Highway Patrol project</p>	<p>Section 408: \$75,000 (cost-share amount)</p>

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
2. Improve the Individual Data Systems that Supply Information to the Safety Management System (SMS) (continued)	<p><b>2.8 Linkage of EMS, Crash, Hospital, and Post-Hospital Data</b>  <i>Purpose:</i> To develop a CODES-like system for providing complete cost and outcome information on the effect of traffic crashes  <i>Description (Phases):</i></p> <p>2.8.1 Phase 1: Develop a standard probabilistic linkage procedure for matching the new OPHI system for EMS data (NEMSIS-based) with hospital records, financial information on injury, traffic records and other sources with the intent of developing performance measures on medical outcomes and associated costs. Build on previous work performed by DPHHS as well as methods used in other states and identified in the literature. Identify data sources from major hospitals, including both urban and rural locations. Compare results to CODES states. The procedure is to be repeated semiannually (Phase 2) in order to derive cost information that is used in planning, as well as to provide a snapshot of the effectiveness of activities from the crash scene through the pre-hospital setting, and through the hospital to their injury outcomes on Montana roadways.</p> <p>2.8.2 Phase 2: Apply the procedure semiannually; report results to TRCC at least annually.</p> <p><i>Measurement of Progress:</i> Number of cases tracked through the system from crash scene to post-hospital care</p>	DPHHS, Jim DeTienne	<p>Phase 1: 12 months  Phase 2: 6 months every update cycle  <i>Milestones, Deliverables, and Reporting:</i>  Phase 1:  Methodology Report:  @2 months  Final Report:  @12 months  User's Manual:  @12 months  Phase 2:  Semiannual Reports</p>	<p>Section 408 funds:  Phase 1: \$150,000 plus \$75,000 allocations to participating hospitals for data provision  Phase 2: \$25,000 per year</p>

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>2.9 Automated Linkage of Roadway Geometric Data and Crash Data</b></p> <p><i>Purpose:</i> To obtain MMUCC “linked” data items related to roadway geometry and traffic by electronic transfer rather than police officer coding</p> <p><i>Description (Tasks):</i></p> <p>2.9.1 Identify MMUCC geometric and traffic data elements present in the Road Log.</p> <p>2.9.2 Develop software for linking MARS crash data with Road Log when crash data are processed (after transferal from MDT to MARS)</p> <p>2.9.3 Explore feasibility of auto-populating linked data items on electronic crash form at crash scene</p> <p>(This project is contingent on the completion of GPS geocoding of crash locations and completion of the geocoding of the Road Log.)</p> <p><i>Measurement of Progress:</i> Percent of crashes capable of being linked with Road Log</p>	MDT (Bill Cloud) and Highway Patrol (Mike Tooley)	<p>12 months</p> <p><i>Milestones, Deliverables, and Reporting:</i></p> <p>Task 1:</p> <p>Report: @3 months</p> <p>Task 2:</p> <p>Testing @8 months</p> <p>User’s Guide @12 months</p> <p>Task 3: Final Report @12 months</p>	\$150,000 (Section 408 funds)
	<p><b>2.10 Multi-Agency GIS Vision Plan for Traffic Records</b></p> <p><i>Purpose:</i> To develop a GIS Vision Plan that encompasses all the relevant Montana state agencies.</p> <p><i>Description:</i> The Plan should address how GIS is being used by the different agencies and the whether a common base layer and software should be used. Assemble representatives from state agencies to serve as a Review Panel. Explore the possibility of a single statewide referencing system or cross referencing system to the state plane coordinates. Estimate the costs for all agencies to adjust to common system as well as establishing translations between different georeferencing systems.</p> <p><i>Measurement of Progress:</i> The success of the project depends on whether agencies can adapt its recommendations, which will be 1 or more years after its completion</p>	Unknown; requires one agency to take the lead (see Note 4)	<p>12 months</p> <p><i>Milestones, Deliverables, and Reporting:</i></p> <p>Meetings of Review Panel: @3, 6, and 12 months</p> <p>Final Report @12 months</p>	(See Note <sup>c</sup> )

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p><b>2.11 Automated Support for Collision Diagram Coding</b></p> <p><i>Purpose:</i> To aid police officers in accurate coding of the PAR's collision diagram</p> <p><i>Description:</i> Implement a demonstration project whereby the complex intersection striping plans are stored in the investigating officer's computer and made accessible to aid in collision diagrams on crash report (MARS). Estimate costs of expanding the system statewide.</p> <p><i>Measurement of Progress:</i> Ability of police officers to use the system</p>	MDT (Pierre Jomini) and Highway Patrol (Mike Tooley)	<p>12 months</p> <p><i>Milestones, Deliverables, and Reporting:</i> Final Report @12 months</p>	\$75,000 (Section 408)
	<p><b>2.12 Analysis Reporting System for Central Court Repository</b></p> <p><i>Purpose:</i> To develop custom and standardized report queries of the court database.</p> <p><i>Description:</i> A need exists to develop a reporting mechanism for extracting data from the Central Court Repository. This project will develop a series of standardized reports for users of traffic records as well as court personnel in tracking trends in convictions; this will be accomplished by performing a formal user requirements analysis prior to software development. The system should also allow for customized queries as well as standard reports.</p>	Office of the Court Administration (Karen Nelson)	<p>12 months</p> <p><i>Milestones, Deliverables, and Reporting:</i> Testing @9 months User's Guide @12 months</p>	\$150,000 (Section 408)

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

<b>MT-TReSP Objective</b>	<b>Activity/Description</b>	<b>Responsible Agencies</b>	<b>Schedule</b>	<b>Budget<sup>a</sup></b>
3. Develop an Enhanced Safety Management System to Promote Additional Types of Safety Analyses	<p><b>3.1 National Review of Best practices Related to Safety Analysis Systems</b></p> <p><i>Purpose:</i> To obtain background information for eventual system development</p> <p><i>Description (Tasks):</i></p> <ul style="list-style-type: none"> <li>3.1.1 Data integration techniques used in other states for traffic records systems</li> <li>3.1.2 Quality control procedures</li> <li>3.1.3 System access methods for a wide variety of users, including security controls; and analysis methods and reporting.</li> </ul> <p><i>Measurement of Progress:</i> N/A; provides base information for system development</p>	MDT (Pierre Jomini) and Highway Traffic Safety Office (Jack Williams)	6 months <i>Milestones, Deliverables, and Reporting:</i> Final Report @6 months	\$75,000 (Section 408)
	<p><b>3.2 Montana Safety Analysis System: Design (Phase 1)</b></p> <p><i>Purpose:</i> To specify the design of the Montana Safety Analysis System</p> <p><i>Description:</i></p> <ul style="list-style-type: none"> <li>• Develop system functional requirements via a thorough review of user requirements conducted using formal IT techniques (e.g., joint application development sessions) <ul style="list-style-type: none"> <li>○ Data model</li> <li>○ Data dictionary and schema</li> <li>○ User interface</li> <li>○ Analysis and report writing capabilities</li> </ul> </li> <li>• Integration plan for data from source systems.</li> <li>• System architecture</li> </ul> <p><i>Measurement of Progress:</i> N/A; provides basis for eventual system development</p>	MDT (Pierre Jomini) and Highway Traffic Safety Office (Jack Williams)	9 months <i>Milestones, Deliverables, and Reporting:</i> User Requirements Report @3 months Functional requirements and Architecture report @9 months	\$150,000 (Section 408)

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p>3.3 <i>Montana Safety Analysis System: System Development (Phase 2)</i></p> <p><i>Purpose:</i> To develop the Montana Safety Analysis System</p> <p><i>Description:</i> This the “Build” portion of the project. Under Phase 2) an enhanced SMS that extends its current features by accepting data from additional sources beyond crash, roadway inventory, and traffic.<sup>d</sup> This includes data on citations, convictions, driver histories, EMS runs, truck inspections, and tribal records. Include at a minimum the following functionality:</p> <ol style="list-style-type: none"> <li>1. Periodic updates of selected data items from FullCourt, driver records, citations, OPHI (EMS runs), and data from tribes (via BIA);</li> <li>2. Web-based access;</li> </ol>	MDT (Pierre Jomini) and Highway Traffic Safety Office (Jack Williams)	<p>36 months</p> <p><i>Milestones, Deliverables, and Reporting:</i></p> <p>Build 1: @12 months</p> <p>Build 2: @24 months</p> <p>Final System @36 months</p> <p>User’s and Technical Manuals @36 months</p>	\$333,000 per year for 3 years (Section 408)
3. Develop an Enhanced Safety Management System to Promote Additional Types of Safety Analyses (continued)	<p>3. Additional forms of roadway, vehicle, and person-related analyses, including:</p> <ol style="list-style-type: none"> <li>a. Commercial vehicle crash analyses;</li> <li>b. Reservation crash patterns;</li> <li>c. Citation-to-conviction ratios;</li> <li>d. Advanced high-crash location identification analysis possibly using advanced statistical methods such as the “Empirical Bayes” approach;<sup>e</sup></li> <li>e. Crash typologies for selected roadway segments.<sup>f</sup></li> </ol>			

**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

MT-TReSP Objective	Activity/Description	Responsible Agencies	Schedule	Budget <sup>a</sup>
	<p>4. Quality control procedures for data received from the various sources, including reports on data quality in terms of:</p> <ul style="list-style-type: none"> <li>a. <b>Accuracy</b> – The measure or degree of agreement between a data value or set of values and a source assumed to be correct.</li> <li>b. <b>Completeness</b> (availability) – The degree to which data values are present in the attributes that require them.</li> <li>c. <b>Validity</b> – The degree to which data values satisfy acceptance requirements of the validation criteria or fall within the respective domain of acceptable values.</li> <li>d. <b>Timeliness</b> – The degree to which data values or a set of values are provided at the time required or specified.</li> <li>e. <b>Coverage</b> – The degree to which data values in a sample accurately represent the whole of that which is to be measured. As with other measures, coverage can be expressed in absolute or relative units.</li> <li>f. <b>Accessibility</b> – The relative ease with which data can be retrieved and manipulated by data consumers to meet their needs.</li> </ul>			

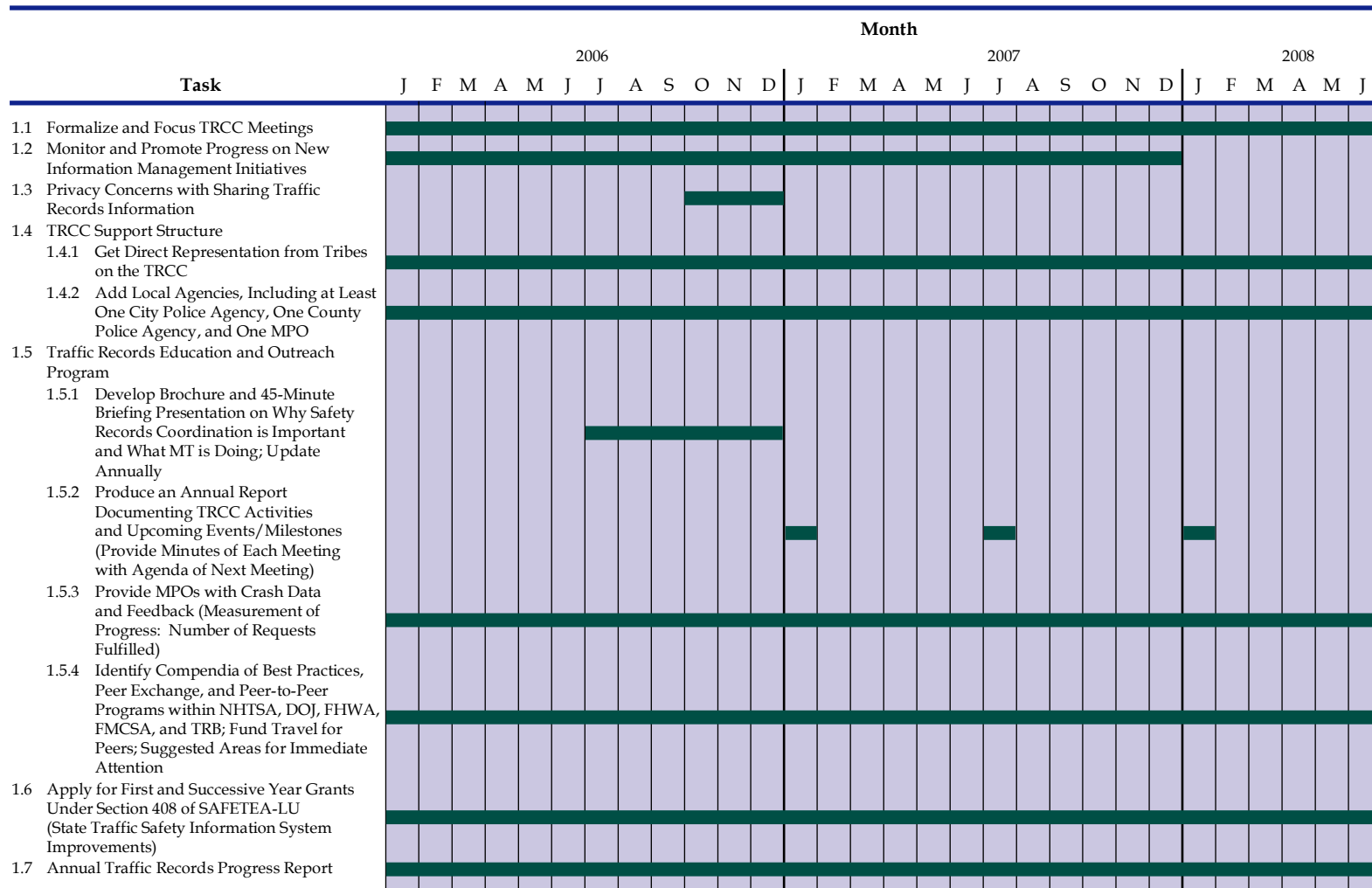


**Table 3.1 Action Plan for the Montana Traffic Records Strategic Plan (continued)**

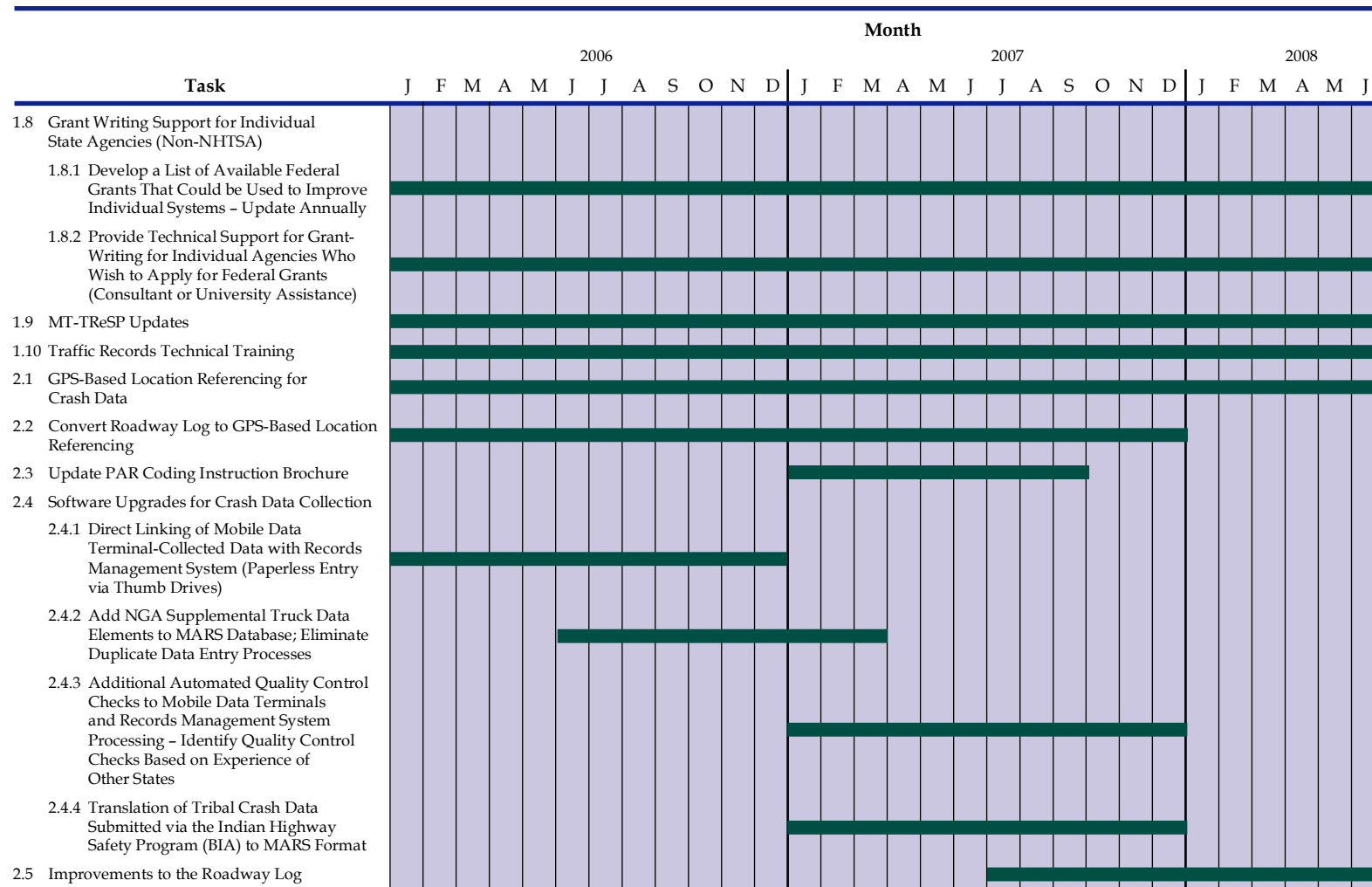
<b>MT-TReSP Objective</b>	<b>Activity/Description</b>	<b>Responsible Agencies</b>	<b>Schedule</b>	<b>Budget<sup>a</sup></b>
3. Develop an Enhanced Safety Management System to Promote Additional Types of Safety Analyses (continued)	5. Ability for all suppliers of data to access the system and perform pre-set and customized analyses. <sup>c</sup> 6. Ability for local governments to have access to all nonsensitive data. 7. Ability for citizens to perform high-level cross tabulations of data at fairly large geographic areas (not high-crash locations). 8. Interfaces with commercially available packages such as Intersection Magic, Excel, and SAS. 9. Interfaces with government developed analysis packages such as SafetyAnalyst and IHSDM. 10. DUI tracking capability, from citation to conviction. 11. Direct FARS and SAFETYNET interfaces. 12. Graphical displays of roadway segment crashes (similar to collision diagrams at intersections). 13. Providing data for and accepting data developed by Roadway Safety Audits			
	<b>3.4 Enhanced Montana Safety Analysis System User's Group</b>  <i>Purpose and Description:</i> Establish a users group for the enhanced SMS to include agency personnel and Montana university researchers	Highway Traffic Safety Office (Jack Williams)	Ongoing	In-kind effort

- Notes:
- <sup>a</sup> Where dollar amounts are shown, it is assumed that Section 408 State Traffic Safety Information System Improvement grants will be used. It is assumed that first year and successive year grants will be obtained.
  - <sup>b</sup> A separate grant under the CVARS program maintained by FMCSA should be pursued for this activity.
  - <sup>c</sup> Not recommended for funding under the Section 408 grant because it has much wider application beyond just safety data integration; state funds will have to be used for this study.
  - <sup>d</sup> The degree to which customized analyses can be performed within the system needs to be assessed during the functional requirements phase. It may be more cost-effective to provide linkages to analysis packages and to have the custom analyses performed by Highway Traffic Safety Office/MDT staff.
  - <sup>e</sup> In the past decade, safety researchers have noted that the large variability in accident occurrence at a site from year-to-year can lead to problems with identifying “true” high-crash locations. That is, due to chance, a site may have an abnormally high number of crashes in a given year and will be identified as a high-crash location when in fact it is not. One way to control for this problem is to use multiple years of data (usually more than 3), but then there is a problem with conditions changing at a site over time. Another way is to use statistical controls such as those recommended by Hauer (Hauer, Ezra, *Observational Before-After Studies in Road Safety*, Pergamon Press, 1997). In this approach the adjusted number of crashes at a site is a weighted combination of actual crashes and predicted crashes using a general model (or mean rates) derived from similar sites. The weights are determined by how much actual crash data exist at a site and how the variability in prediction rates of the model. The effect is to “smooth” the observed rates to control for the annual variability phenomenon.
  - <sup>f</sup> Crash typologies are detailed characteristics of crashes obtained by combining several individual data elements. For example, the number of late night rollover crashes on rural two-lane highways involving young male drivers is an example of a crash typology.

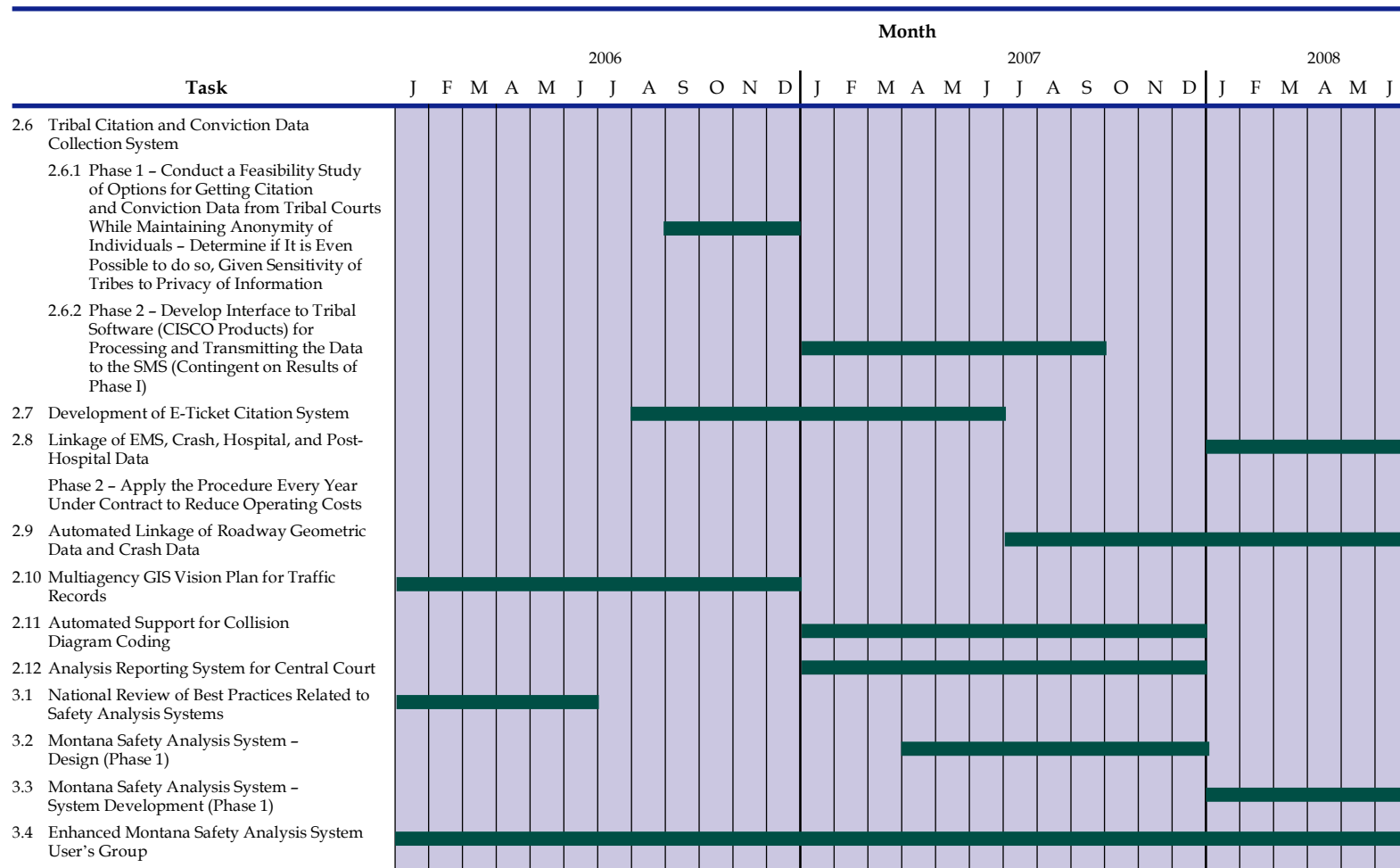
**Figure 3.1 MT-TReSP Schedule**  
2006-2008



**Figure 3.1 MT-TReSP Schedule**  
2006-2008 (continued)



**Figure 3.1 MT-TReSP Schedule**  
 2006-2008 (continued)



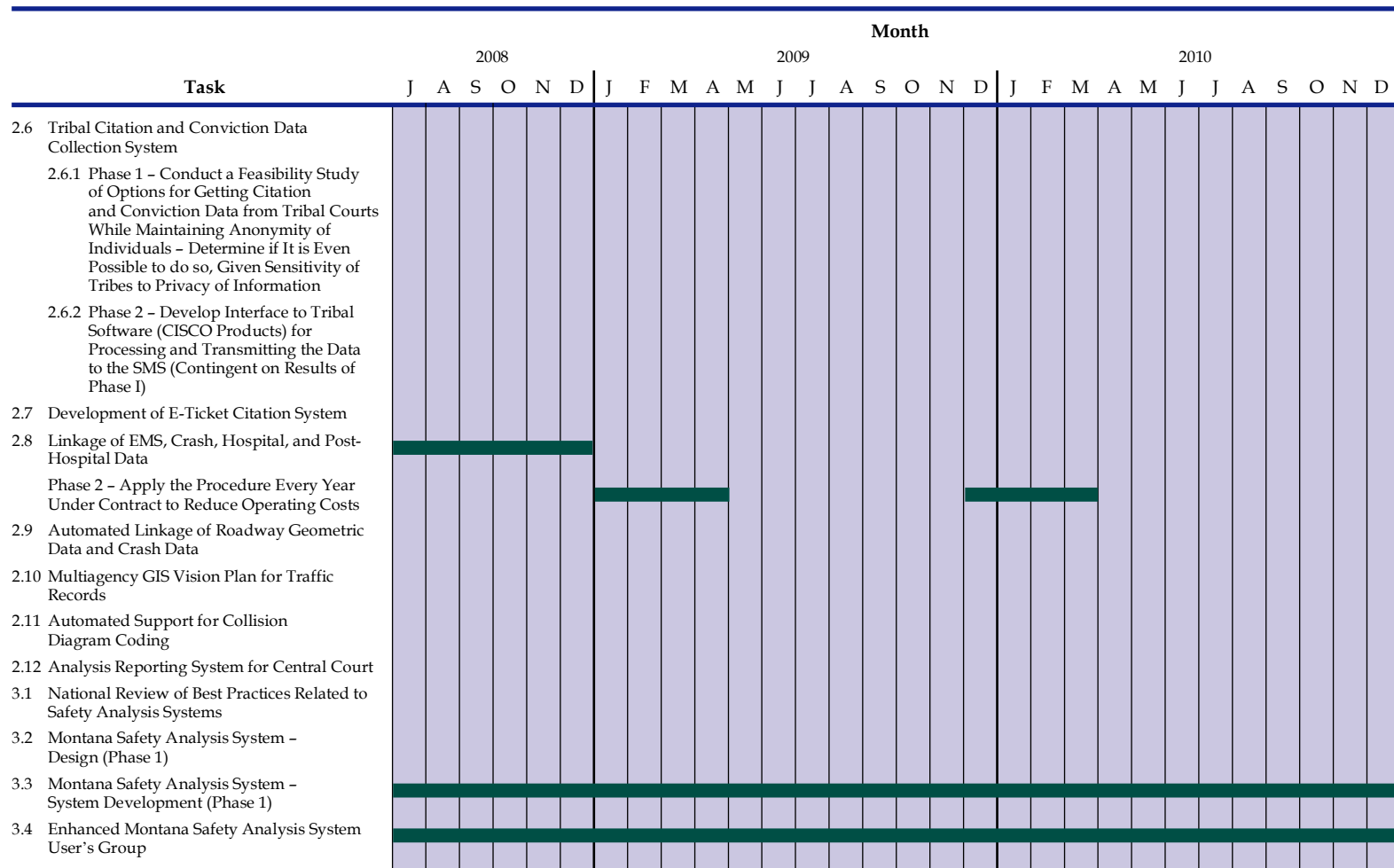
**Figure 3.1 MT-TReSP Schedule**  
2008-2010

Task	Month																																										
	2008						2009												2010																								
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D													
1.1 Formalize and Focus TRCC Meetings																																											
1.2 Monitor and Promote Progress on New Information Management Initiatives																																											
1.3 Privacy Concerns with Sharing Traffic Records Information																																											
1.4 TRCC Support Structure																																											
1.4.1 Get Direct Representation from Tribes on the TRCC																																											
1.4.2 Add Local Agencies, Including at Least One City Police Agency, One County Police Agency, and One MPO																																											
1.5 Traffic Records Education and Outreach Program																																											
1.5.1 Develop Brochure and 45-Minute Briefing Presentation on Why Safety Records Coordination is Important and What MT is Doing; Update Annually																																											
1.5.2 Produce an Annual Report Documenting TRCC Activities and Upcoming Events/Milestones (Provide Minutes of Each Meeting with Agenda of Next Meeting)																																											
1.5.3 Provide MPOs with Crash Data and Feedback (Measurement of Progress: Number of Requests Fulfilled)																																											
1.5.4 Identify Compendia of Best Practices, Peer Exchange, and Peer-to-Peer Programs within NHTSA, DOJ, FHWA, FMCSA, and TRB; Fund Travel for Peers; Suggested Areas for Immediate Attention																																											
1.6 Apply for First and Successive Year Grants Under Section 408 of SAFETEA-LU (State Traffic Safety Information System Improvements)																																											
1.7 Annual Traffic Records Progress Report																																											

**Figure 3.1 MT-TReSP Schedule**  
 2008-2010 (continued)

Task	Month																													
	2008						2009												2010											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.8 Grant Writing Support for Individual State Agencies (Non-NHTSA)																														
1.8.1 Develop a List of Available Federal Grants That Could be Used to Improve Individual Systems – Update Annually																														
1.8.2 Provide Technical Support for Grant-Writing for Individual Agencies Who Wish to Apply for Federal Grants (Consultant or University Assistance)																														
1.9 MT-TReSP Updates																														
1.10 Traffic Records Technical Training																														
2.1 GPS-Based Location Referencing for Crash Data																														
2.2 Convert Roadway Log to GPS-Based Location Referencing																														
2.3 Update PAR Coding Instruction Brochure																														
2.4 Software Upgrades for Crash Data Collection																														
2.4.1 Direct Linking of Mobile Data Terminal-Collected Data with Records Management System (Paperless Entry via Thumb Drives)																														
2.4.2 Add NGA Supplemental Truck Data Elements to MARS Database; Eliminate Duplicate Data Entry Processes																														
2.4.3 Additional Automated Quality Control Checks to Mobile Data Terminals and Records Management System Processing – Identify Quality Control Checks Based on Experience of Other States																														
2.4.4 Translation of Tribal Crash Data Submitted via the Indian Highway Safety Program (BIA) to MARS Format																														
2.5 Improvements to the Roadway Log																														

**Figure 3.1 MT-TReSP Schedule**  
2008-2010 (continued)





## ■ 3.4 Prioritizing the Action Plan

The Action Plan has been developed assuming that funding is available to undertake all of the activities over the five-year period covered by this Plan. However, there is no guarantee that Section 408 funds can be obtained for all five years. Therefore, a three-tiered prioritization of projects is being made as a contingency, with high priority associated with Tier 1, and priority associated with Tier 3. These priorities were established by:

- Reviewing the Action Plan for critical projects upon which one or more future activities rest; and
- Reaching consensus among TRCC members that the priority order is appropriate.

### **Tier 1 – Essential Activities That Must Be Undertaken Regardless of the Availability of Grant Funding**

- **Activities 1.1 through 1.10** – These are all the activities relating to Objective 1, Improve the Operation of the Traffic Records Coordinating Committee (TRCC). An active TRCC is the most critical part of developing an improved traffic records system.
- **Activity 2.1** – *GPS-Based Location Referencing for Crash Data.*
- **Activity 2.2** – *Convert Roadway Log to GPS-Based Location Referencing.*
- **Activity 2.4.1** – *Direct linking of mobile data terminal-collected data with Records Management System.*
- **Activity 2.4.4** – *Translation of tribal crash data submitted via the Indian Highway Safety Program (BIA) to MARS format.*
- **Activity 2.10** – *Multi-Agency GIS Vision Plan for Traffic Records.*

### **Tier 2 – Activities That Would Improve Safety Data without New System Development**

- **Activity 2.3** – *Update PAR Coding Instruction Brochure.*
- **Activity 2.4.2** – *Add NGA supplemental truck data elements to MARS data base; eliminate duplicate data entry processes.*
- **Activity 2.4.3** – *Additional automated quality control checks to mobile data terminals and Records Management System processing.*

- **Activity 2.5** – *Improvements to the Roadway Log.”*
- **Activity 2.6** – *Tribal Citation and Conviction Data Collection System.*
- **Activity 2.7** – *Development of E-Ticket Citation System.*
- **Activity 2.8** – *Linkage of EMS, Crash, Hospital, and Post-Hospital Data.*
- **Activity 2.9** – *Automated Linkage of Roadway Geometric Data and Crash Data.*
- **Activity 2.11** – *Automated Support for Collision Diagram Coding.*

### **Tier 3 – New System Development (Enhanced SMS)**

- **Activities 3.1 through 3.4.**
- **Activity 2.12** – *Analysis Reporting System for Central Court Repository. Custom and standardized report queries of the court database.*

## ■ **3.5 How the MT-TReSP Meets SAFETEA-LU Requirements for Section 408 Grants**

An assessment of how the Section 408 grant requirements are met by the MT-TReSP and other activities underway in Montana follows.

1. ... established a highway safety data and traffic records coordinating committee with a multidisciplinary membership **COMPLETED**.
2. ... developed a multiyear highway safety data and traffic records system strategic plan:
  - that addresses existing deficiencies in the State’s highway safety data and traffic records system **ACCOMPLISHED BY THIS PLAN AND THE 2004 TRAFFIC RECORDS ASSESSMENT**;
  - that is approved by the highway safety data and traffic records coordinating committee **NEEDS TO BE ACTED UPON BY THE TRCC AFTER SUBMITTAL OF THE FINAL VERSION OF THE MT-TReSP**;
  - that specifies how existing deficiencies in the State’s highway safety data and traffic records system were identified **ACCOMPLISHED BY THIS PLAN**;
  - that prioritizes, on the basis of the identified highway safety data and traffic records system deficiencies of the State, the highway safety data and traffic records

system needs and goals of the State **ACCOMPLISHED BY THIS PLAN; THE SCHEDULE AND BUDGETED AMOUNTS FOR EACH ACTIVITY IN THE ACTION PLAN INDICATE THE PRIORITY;**

- that identifies performance-based measures by which progress toward those goals will be determined **SAFETY PERFORMANCE MEASURES ARE DEFINED IN MONTANA’S COMPREHENSIVE SAFETY PLAN;** and
  - that specifies how the grant funds and any other funds of the State are to be used to address needs and goals identified in the multiyear plan **PROVIDED BY THE ACTION PLAN IN THIS SECTION.**
3. ... Certifies to the Secretary that an assessment or audit of the State’s highway safety data and traffic records system has been conducted or updated within the preceding five years **TRAFFIC RECORDS ASSESSMENT COMPLETED IN 2004.**
  4. ... Certifies to the Secretary that its highway safety data and traffic records coordinating committee continues to operate and supports the multiyear plan **REQUIRES FORMAL AND ACTIVE PARTICIPATION BY MONTANA AGENCIES IN THE TRCC.**
  5. ... Specifies how the grant funds and any other funds of the State are to be used to address needs and goals identified in the multiyear plan **PROVIDED BY THE ACTION PLAN IN THIS SECTION.**
  6. ... Demonstrates to the Secretary measurable progress toward achieving the goals and objectives identified in the multiyear plan **MUST BE INCLUDED IN THE ANNUAL “Traffic Safety Problem Identification Report” AS SPECIFIED IN THE ACTION PLAN.**
  7. ... Submits to the Secretary a current report on the progress in implementing the multiyear plan **MUST BE INCLUDED IN THE ANNUAL “Traffic Safety Problem Identification Report” AS SPECIFIED IN THE ACTION PLAN.**

## ■ 3.6 System Coverage of the Plan

Table 3.2 shows the relationship between the projects in the Action Plan and the type of Montana information systems covered.

**Table 3.2 Action Plan Projects and Their Effect on Information Systems**

Project	Information System					
	Crash	Roadway	Driver	Vehicle	Court	Inj. Surv.
1.1 Formalize and Focus TRCC Meetings	○	○	○	○	○	○
1.2 Monitor and Promote Progress on New Information Management Initiatives	○	○	○	○	○	○
1.3 Privacy Concerns with Sharing Traffic Records Information	○	○	○	○	○	○
1.4 TRCC Support Structure	○	○	○	○	○	○
1.5 Traffic Records Education and Outreach Program	○	○	○	○	○	○
1.6 Apply for First and Successive Year Grants under Section 408 of SAFETEA-LU	○	○	○	○	○	○
1.7 Annual Traffic Records Progress Report	○	○	○	○	○	○
1.8 Grant Writing Support for Individual State Agencies (non-NHTSA).	○	○	○	○	○	○
1.9 MT-TReSP Updates	○	○	○	○	○	○
2.1 GPS-Based Location Referencing for Crash Data	●	●				
2.2 Convert Roadway Log to GPS-Based Location Referencing		●				
2.3 Update PAR Coding Instruction Brochure	●					
2.4 Software Upgrades for Crash Data Collection	●					
2.5 Improvements to the Roadway Log		●				
2.6 Tribal Citation and Conviction Data Collection System					●	
2.7 Development of E-Ticket Citation System					●	
2.8 Linkage of EMS, Crash, Hospital, and Post-Hospital Data						●
2.9 Automated Linkage of Roadway Geometric Data and Crash Data	●	●				
2.10 Multi-Agency GIS Vision Plan for Traffic Records	●	●	●	●	●	●
2.11 Automated Support for Collision Diagram Coding	●					
2.12 Analysis Reporting System for Central Court Repository					●	
3.1 National Review of Best Practices Related to Safety Analysis Systems	A new integrated system will be constructed that is linked to all the base information systems					
3.2 Montana Safety Analysis System: Design (Phase 1)						
3.3 Montana Safety Analysis System: System Development (Phase 2)						
3.4 Enhanced Montana Safety Analysis System User's Group						

○ = Indirectly Affected.

● = Directly Affected.

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# Appendix A

*Traffic Records System Strategic Plan:  
Experience from Other States*



# Traffic Records System Strategic Plan: Experience from Other States

## ■ Introduction

Beginning with the National Highway Traffic and Safety Administration's (NHTSA) goal of reducing the annual highway death toll in the United States to 1.0 deaths per 100 million vehicle-miles of travel (VMT), or saving 9,000 lives per year by 2008, states realized the need for an improved Traffic Records System (TRS). Current systems are run by multiple jurisdictions that rarely share information, and are often run on outdated databases. Furthermore, much of the information are incompatible with other systems, often inaccurate, and cannot be easily processed for safety analysis.

This technical report summarizes assessments and activities performed by multiple state DOTs in their development of a better traffic records system. Traffic records assessments explore the current state and future plan for a state-of-the-state reporting system. With good reporting systems, better data-driven decisions and safer roadways may be achieved. The assessments also provide a basis to address 3SAFETEA (Reauthorization) funding requirements for traffic records system improvements. Most states' assessments followed the NHTSA/FHWA methodology of "peer review" to assess their current situations, as well as discussing the ideal systems and approaches to achieve such improvement. Perhaps unsurprisingly, much of the discussions centered on two major issues: institutional and technical. Institutional issues may range from communications and coordination strategies between state agencies, and to make sure that this effort receives full support from all agencies involved. Technical issues typically involve selecting the ideal system that satisfies every stakeholder's requirements, variables to be included in the report, ease of use, and new technologies to be adopted as part of this improvement effort.

## ■ Background

A good TRS is all about the information and its quality. The components of a TRS should provide information about the places, property, and people involved in crashes and about the factors that may have contributed to these crashes. It also should contain information that may reveal consistent problems at certain locations so they can be fixed. In short, the ideal TRS should have the following components, according to the 2003 Model Minimum Uniform Crash Criteria:

- **Crash** – Crash date and time, location, first harmful event, weather conditions, roadway surface condition, Severity, and number of vehicles involved;
- **Injury** – Injury status, transported to medical facility by, injury area, injury description;
- **Roadway** – Bridge/structure ID, curvature, grade, roadway functional class, AADT, access control, railway crossing ID, and lighting;
- **Vehicles** – VIN number, vehicle registration state and year, license plate number, vehicle make and model, and commercial vehicle info (motor carrier ID, gross vehicle rating, commercial vehicle configuration, commercial cargo body type, and hazardous material placard);
- **Driver/Person** – DOB, sex, person type (driver, passenger, pedestrian, bicyclist), seating position, protection systems used, driver license number and class, and commercial vehicle endorsements; and
- **Enforcement/Adjudication** – Driver actions at time of crash, driver violation codes, suspected drug/alcohol use, and drug/alcohol tests.

The completeness of a TRS is judged by the following performance measures:

- **Timeliness** – How soon is the data available from the date of crash? How often are systems updated?
- **Accuracy** – What are the standards and training efforts are in place to ensure consistency of interpretation? How can human error factors be minimized?
- **Completeness** – Is possible to report all aspects of the crash? How often is the category called “Other” used? What variables should be added to the report?
- **Uniformity** – Is the system compatible with past entries? Is it compatible with systems run by other agencies?
- **Integratibility** – Can the data systems from multiple agencies be integrated and centralized?
- **Accessibility** – Who will be allowed access, and what level of access rights are available? Is it user-friendly? Is the system being actively used? What public information should be made available on-line?



## **Maryland SHA Assessment Summary**

### ***Goals and Objectives***

- Analyze the existing Traffic Records System to establish a baseline;
- Ensure the participation of every sector of the State in an integrated approach to highway traffic safety; and
- Identify emerging technologies and weave future technology requirements into the Strategic Plan.

### ***Recommended Actions***

- Hire a Traffic Records Coordinator to champion the cause;
- Formalize the Traffic Records Coordinating Committee (TRCC);
- Identify activities to be undertaken by the TRCC, including building cooperation among the various agencies, to better integrate the collected data;
- Implement the various redesign and development activities within agencies and programs;
- Promote the exploration of the development of a State Data Repository;
- Study the development of a Standard Location Reference System (GIS-based) for all roadways and all jurisdictions in order to assist law enforcement and emergency medical technicians in data collection;
- Propose an interagency subcommittee of the TRCC to develop cost initiatives for each agency's proposed improvements; and
- Propose a second interagency subcommittee of the TRCC be established to plan a future National Traffic Records Forum to be held in Maryland.

## **Connecticut DOT Assessment Summary**

### ***Goals and Objectives***

- Improve highway safety and help reduce fatality rate to 1.0 deaths per 100 million VMT.

### ***Recommended Actions***

- Fully digitize all traffic and safety records;
- Create a data warehouse to integrate different systems. Variables typically shared across different systems include: crash ID, emergency management service (EMS) ID, crash longitude/latitude, VIN, driver license, SSN, and citation ID;
- Select a user-friendly decision support/query tools;
- Review and improve PR-1 (Connecticut's police report for crashes) questions and variables;
- Integrate data warehouse with GIS tools and DMV databases;
- Promote the TRCC; find a champion/coordinator and sponsors; and
- Align program with local and national ITS/safety initiatives.

## **Delaware DOT Assessment Summary**

### ***Goals and Objectives***

- Improve highway safety and help reduce fatality rate to 1.0 deaths per 100 million VMT.

### ***Recommended Actions***

- Make sure TRCC is inclusive, by asking participations from the following agencies:
  - State Office of Highway Safety;
  - State DOT;
  - State Police;
  - DMV;
  - Office of Emergency Management Services (EMS);
  - Justice Information System;
  - Highway Patrol;
  - Office of Administration Services;
  - Chiefs of Police Association;
  - MPOs/key city traffic departments; and
  - Office of Community Traffic Safety.

- Update crash reporting systems with clearer variables.
- Identify, promote, and train use of user-friendly decision-support/query tools.
- Integrate systems from multiple jurisdictions.
- Involve key users during the tool selection and integration process. This will minimize the risks of the data warehouse being left unused.
- Add GIS and Crash Outcome Data Evaluation System (CODES) capabilities in the data warehouse.

## **Florida DOT Assessment Summary**

### ***Goals and Objectives***

- Improve the Timeliness and Accuracy of Traffic Crash Data;
- Improve Traffic Crash Data Quality;
- Develop Linkages and Access to Other Databases; and
- Promote the Use of Traffic Records for Program Planning.

### ***Recommended Actions***

- Digitize reports and allow for electronic transfers, perhaps directly from crash sites.
- Upgrade existing DMV databases from COBOL-based flat data structure to a relational-based ORACLE system.
- Assess and establish policy on security and privacy issues.
- Improve crash reporting turnover to within 10 business days, and enforce this standard.
- Create “Data Centers” to centralize data entry duties. This also will improve uniformity of interpretation, and allow data analysts to better understand the weaknesses of the current reporting form.
- Develop a crash reporting manual geared for Data Center staff (striving for completeness and accuracy, as opposed to ease of use).
- Improve commercial vehicle crash information; eliminate the ambiguous “Other” categories as much as possible.
- Upgrade hardware and software systems, include GIS capabilities.

- Making data available to the public via the Internet, and promote this among current users, including insurance companies, advocacy groups, legislative groups, and others. Assess and establish privacy policies and access fees.
- Start using the data systems for planning and budgeting purposes.

## **Massachusetts DOT Assessment Summary**

### ***Goals and Objectives***

- Improving traffic records.

### ***Recommended Actions***

- Phase I: Solidify Organizational Structure for Guiding TRS Improvements:
  - Identify existing coordinating committees;
  - Build an organizational structure to serve as the TRCC; and
  - Develop efficient communication methods with all stakeholders.
- Phase II: Enhance Analytic Capabilities of the Users:
  - Promote user-friendly, yet powerful tools for key users to make use of the data;
  - Provide analytical and technical support to users;
  - Identify and train potential users of TRS; and
  - Establish an efficient training mechanism to users in the state/local organizations involved in safety issues.
- Phase III: Promote Improved Collection, Transfer, and Access to Data for All Users:
  - Promote system functionality and improvements;
  - Allow for data collection from crash sites, electronically submitted to centralized databases;
  - Create a forum to continually improve the system; and
  - Pursue cooperative agreements, legislation, and funds to continually maintain the system.

## **New Mexico DOT Assessment Summary**

### ***Goals and Objectives***

- Create a Statewide TRS designed for electronic collection and transmission across multiple data components and agencies; and
- Establish web access to traffic records, reports, and traffic analysis.

### ***Recommended Actions***

- Sign MOU to support a strategic plan;
- Identify and study the results of two “best practices,” ask representatives to present their experiences to the TRCC;
- Develop an information sharing agreement between agencies serving in the TRCC;
- Assess and establish policies on privacy and security;
- Identify records that should be included in the TRS, develop data dictionary and database architecture. Interview current users across multiple agencies;
- Develop a two-year plan, budget, and evaluation plan for the development of a pilot TRS;
- Develop an electronic citation pilot project and evaluation plan;
- Hold discussions between IT representatives from multiple agencies to assess IT implementation and maintenance needs, including outside technical support;
- Identify possible sources of funds, including NHTSA, Department of Finance, and possible revenues from public access users and electronic citation payments;
- Design a user-friendly query tools that will be useful and powerful enough for all users; and
- Develop performance measures to monitor timeliness of TRS data.

## **Washington DOT Assessment Summary**

### ***Goals and Objectives***

- A seamless and integrated system for information travel from point of origin to its end use and analysis.

### ***Recent and Current Actions***

- Established roles for the TRCC;
- Developed a TRCC Strategic Plan;
- Developed a list of projects and tasks;
- Assessed feasibility, costs, and benefits of the Electronic Traffic Information Processing (eTRIP) Initiative, which is comprised of a series of projects that aims to reduce paper-based data collection and transfers; and
- Developed implementation plan for Statewide Electronic Collision and Ticket On-line Reporting (SECTOR) Software.

## **Iowa DOT Assessment Summary**

### ***Goals and Objectives***

- Unknown.

### ***Recent and Current Actions***

- Established the Statewide Traffic Records Advisory Committee (STRAC), participated by representatives from the Governor's Traffic Safety Bureau, Department of Public Safety, Office of Traffic and Safety, and the DOT; and
- Reviewed current traffic recording processes and to share new technologies and opportunities for cooperation.

## **Texas DOT Assessment Summary**

### ***Goals and Objectives***

- To decrease traffic deaths and injuries;
- To decrease both urban and rural traffic fatalities and injuries;
- To decrease the number of crashes caused by top five contributing factors;
- To stabilize the increase in the number and percentage of all speed-related crashes, injuries, and fatalities in both urban and rural areas;
- To decrease the number and the percentage of alcohol-involved traffic crashes, injuries, and fatalities when compared to total crashes;

- To decrease DWI-related crashes involving specific high-risk target groups;
- To decrease the percentage of fatal and injury crashes involving 15- to 20-year-olds with BACs (blood alcohol concentrations) of 0.02;
- To decrease EMS response time to traffic crash scenes;
- To increase occupant restraint usage rates;
- To increase the quality and availability of crash record data;
- To increase knowledge of roadway safety among people involved in engineering areas, at both the local and state level;
- To decrease work zone traffic crash-related fatalities and injuries;
- To decrease the number of highway rail grade crossing crashes and fatalities;
- To decrease the number of motorcycle-related fatalities and injuries;
- To provide effective and efficient management of the Texas Traffic Safety Program;
- To encourage the establishment of community-level traffic safety activities throughout the State;
- To prevent trauma-related fatalities and injuries through establishing and supporting Safe Communities Programs in local areas throughout the State;
- To increase public knowledge and understanding of traffic safety issues;
- To provide for the safest possible transport of school age children; and
- To decrease motor vehicle-related pedestrian fatalities and injuries.

### ***Recent and Current Actions***

- Integrate state highway crash data with crashes occurring on all Texas county highways, and roadways from cities with population of at least 5,000 people. County and city crash databases are maintained separately by each respective agency.
- Add more specific data variables such as location, driver, vehicle, roadway, and causative factors.
- Cross-reference datasets across multiple agencies to identify specific problem areas, i.e., specific segment of roadway, different driver age groups, alcohol, speed, etc.
- Use the data to develop the State's annual highway safety plan (HSP).

- Identify priority performance measures.
- Conduct strategic plan meetings with local agencies to solicit inputs and assess needs.

## **Michigan DOT Assessment Summary**

### ***Goals and Objectives***

- Unknown;

### ***Recent and Recommended Actions***

- Established web access for crash data, and improved turnaround time;
- Currently testing the crash data electronic transfers at five police districts and five local agencies;
- Standardized crash location data, using a software tool that automatically converts location descriptions that often vary by agency (mileposts, intersection, latitude/longitude, etc.) into a uniform coding system;
- Upgraded the Driver Database extensively, including:
  - Allowed recording of all crash involvements regardless of fault;
  - Incorporated not only the driver conviction records but also the original charges, even from other states; and
  - Over 98 percent of the conviction abstracts from the courts can be incorporated electronically.
- Upgrade Roadway Data:
  - Update road features data periodically, especially those necessary for traffic engineering and safety analysis;
  - Reconfigure the Sufficiency file to create a new road segment at major feature changes; and
  - Collect road features data that currently are not inventoried.
- Upgrade Crash Data:
  - Analyze the effect of the increased Property-Damage-Only reporting threshold to \$1,000. Develop analytic methods for producing valid comparisons of 2004 crash frequency and severity with that for prior years.



- Broaden access to the Traffic Crash Records System web application, sanitized as needed, especially to authorized users in engineering agencies at the state and local level.
- Promote development of a complete Traffic Records Data Warehouse where crash and other data sources can be made easily accessible to users.
- Upgrade Citation Data:
  - Pursue in coordination with the Traffic Records Coordinating Committee (TRCC) the rapid development and implementation of a judicial data warehouse to include linkages to other components of the traffic records system.
  - Design and implement a centralized statewide citation tracking system containing information about a citation from “cradle to grave.” Each record in the system should contain information about all actions pertaining to that citation.
- Upgrade Driver Data:
  - Coordinate plans for upgrading the driver and vehicle files with those of the integrated traffic records system and particularly with the Law Enforcement Agency Management System development;
  - Accelerate the development of the single client data system;
  - Work with the State Court Administrative Office to upgrade their court management systems and their inputs to the driver file; and
  - Accelerate plans to participate in the National Motor Vehicle Title Information System as soon as practical.
- Upgrade EMS and Trauma Data:
  - Create and implement a strategic plan for the development of a comprehensive statewide Emergency Medical Service (EMS) and Trauma system;
  - Establish and implement: A uniform state EMS system and reporting, with central data repositories;
  - Adopt and implement the recommendations of the 2002 Report of the Michigan Statewide Trauma Care;
  - Seek funding and support through the TRCC to assist in the development of the EMS and trauma systems; and
  - Reestablish the position of training officer at Criminal Justice Information Center to act as a law enforcement liaison specifically dedicated to improving crash data timeliness, completeness, accuracy, and consistency.
- Expand the membership of the TRCC’s Executive level to include Public Health and the Courts. Insure that these agencies are fully contributing partners;

- Task the TRCC with oversight of the development of a Traffic Records Strategic Plan. This Strategic Plan should:
  - Specify the requirements for and from each component of the traffic records system;
  - Identify the goals for improvements for each of the traffic records system components;
  - Set priorities for each goal with a timeline for implementation;
  - Secure commitment to the goal implementation and the timeline; and
  - Develop a monitoring process to track progress for each goal and a mechanism to modify, or replace goals as required.

## **Louisiana DOT Assessment Summary**

### ***Goals and Objectives***

- To provide for increased accuracy, accessibility, and timeliness of traffic records data.

### ***Recent and Current Actions***

- Implemented the revised the State of Louisiana Uniform Motor Vehicle Accident Report since January 1999, and trained police academy instructors on the changes, which in turn passed on the revised procedures to over 10,000 police officers, deputies, and troopers.
- Upgraded the crash file database from a flat structure into a relational database, which facilitates easier manipulation of the data and more flexibility in design.
- Improved the crash data turnaround time significantly, where law enforcement agencies entering crash data on a secure web application can receive the data back the next business day. Annual crash statistics turnaround times are approximately six months.
- Provided crash data feedback to officers, to improve data quality, timeliness, and crash investigations.
- Formed a permanent Traffic Records Committee (LaTRC) in 1998. This committee has broad-based representation of information services specialists, policy-makers, data providers, and data users from around the State.
- Digitized historical crash data and developed a strategic plan for the State for further electronic data collection. Today, approximately 20 percent of the reports, or from 15 cities, are electronically collected.

- The Office of Motor Vehicles converted the driver and vehicle licensing database from the flat legacy system into a relational system, and established a pilot program with the Louisiana Supreme Court to begin linking local court records to the Supreme Court and to OMV.
- Developed a web-based crash reporting system.
- Develop plans to links crash files with roadway files, GIS data, EMS data, driver licensing and vehicle registration data, prosecution and courts.

## **Wisconsin DOT Assessment Summary**

### ***Goals and Objectives***

- To promote data-driven highway safety decision-making in Wisconsin by state and local organizations and data users during FFY 2004;
- To ensure vigorous participation of all interests in the State Traffic Records Coordinating Committee and to use the TRCC's Traffic Records Strategic Plan recommendations as the basis for decision-making about highway safety information systems, including the programming of 402 and 411 funds during FY 2004;
- To improve crash and outcome reporting by increasing use of linked reports and by increasing the linkages to coroner, ambulance run and emergency department databases during FFY 2004; and
- To improve the collection, processing, and/or dissemination of traffic safety information by increasing the availability of automated data collection and quality GIS base maps with VMT and other normalizing data.

### ***Recent and Current Actions***

- Create and formalize a state traffic records group with state and local representation;
- Initiate an ongoing traffic records planning process;
- Provide training and promote a user-friendly data access system;
- Adopt a common reference system; and
- Ensure conviction data is up-to-date.

## Montana DOT Strategic Plan Outline

### *Goals and Objectives*

- Improve Traffic Records data and information in Montana to help provide better and more accurate data for decision-making, enforcement, health, and other traffic safety experts.

### *Recommended Actions*

- Phase I: Establish TRCC to Guide TRS Improvements:
  - Identify potential committee members;
  - Recruit a Traffic Records Coordinator as project champion and several agency leaders to help as sponsors; and
  - Ensure that TRCC is inclusive. Invite representatives from the following agencies:
    - State Office of Highway Safety;
    - State DOT;
    - State Police;
    - DMV;
    - Office of Emergency Management Services (EMS);
    - Justice Information System;
    - Highway Patrol;
    - Office of Administration Services;
    - Chiefs of Police Association;
    - MPOs/key city traffic departments; and
    - Office of Community Traffic Safety.
  - Build an formal organizational structure
  - Develop efficient communication methods with all stakeholders (i.e., regular meetings, workshops, mailing lists, etc.)
- Phase II: Promote Improved Data Collection, Transfer, Access, and Analysis to All Users:
  - Review current data variables that are collected, prioritize their importance, and suggest additional data variables that may be needed. Develop a revised data dictionary. Key issues include a uniform location identifiers, driver nationwide historical records, and up-to-date conviction/initial charge records. Minimize the use of categories marked as “Others” by rearranging/adding possible options.

- Migrate current data from flat databases into relational databases. Look into long-term issues such as integratibility and scalability. DMV participation in database upgrades is crucial, since they maintain the largest, but one of the oldest databases.
- Select a user-friendly, yet powerful query tool, and promote this to the key users of the database. Prepare training programs so the key users grow accustomed to the system.
- Consider establishing a “Data Center” to mainly serve as the recorder, maintainer, and analysts of the data. This may increase efficiency of data collection and maintenance, as well as improve data quality and uniformity.
- Otherwise, provide a broad analytical and technical support to promote widespread use of the TRS. Consider public access of the data via the web for a fee; its revenues will help support the program.
- Look into integrating the TRS with GIS or other mapping tools, for ease of analysis.
- Begin assessing the benefits/costs of electronic data collection from crash sites, submitted into centralized database repositories.
- Create a forum to continually improve the system.
- Pursue cooperative agreements, legislation, and funds to continually maintain the system.